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ENVIRONMENTAL ASSESSMENT BOARD

VOLUME: 113

DATE: Thursday, June 15th, 1989

BEFORE: M.I. JEFFERY, Q.C., Chairman
E. MARTEL, Member
A. KOVEN, Member

FOR HEARING UPDATES CALL (TOLL-FREE): 1-800-387-8810

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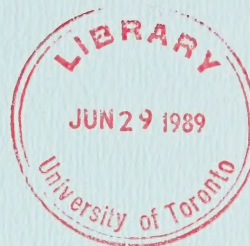
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EA-87-02

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HEARING ON THE PROPOSAL BY THE MINISTRY OF NATURAL
RESOURCES FOR A CLASS ENVIRONMENTAL ASSESSMENT FOR
TIMBER MANAGEMENT ON CROWN LANDS IN ONTARIO

IN THE MATTER of the Environmental
Assessment Act, R.S.O. 1980, c.140;

- and -

IN THE MATTER of the Class Environmental
Assessment for Timber Management on Crown
Lands in Ontario;

- and -

IN THE MATTER of an Order-in-Council
(O.C. 2449/87) authorizing the
Environmental Assessment Board to
administer a funding program, in
connection with the environmental
assessment hearing with respect to the
Timber Management Class
Environmental Assessment, and to
distribute funds to qualified
participants.

Hearing held at the Ramada Prince Arthur
Hotel, 17 North Cumberland St., Thunder
Bay, Ontario, on Thursday, June 15th,
1989, commencing at 9:00 a.m.

VOLUME 113

BEFORE:

| | |
|------------------------------|----------|
| MR. MICHAEL I. JEFFERY, Q.C. | Chairman |
| MR. ELIE MARTEL | Member |
| MRS. ANNE KOVEN | Member |

A P P E A R A N C E S

| | |
|-----------------------|---|
| MR. V. FREIDIN, Q.C.) | MINISTRY OF NATURAL |
| MS. C. BLASTORAH) | RESOURCES |
| MS. K. MURPHY) | |
| MS. Y. HERSCHER) | |
| MR. B. CAMPBELL) | MINISTRY OF ENVIRONMENT |
| MS. J. SEABORN) | |
| MR. R. TUER, Q.C.) | ONTARIO FOREST INDUSTRY |
| MR. R. COSMAN) | ASSOCIATION and ONTARIO |
| MS. E. CRONK) | LUMBER MANUFACTURERS' |
| MR. P.R. CASSIDY) | ASSOCIATION |
| MR. J. WILLIAMS, Q.C. | ONTARIO FEDERATION OF |
| MR. B.R. ARMSTRONG | ANGLERS & HUNTERS |
| MR. G.L. FIRMAN | |
| MR. D. HUNTER | NISHNAWBE-ASKI NATION and WINDIGO TRIBAL COUNCIL |
| MR. J.F. CASTRILLI) | |
| MS. M. SWENARCHUK) | FORESTS FOR TOMORROW |
| MR. R. LINDGREN) | |
| MR. P. SANFORD) | KIMBERLY-CLARK OF CANADA |
| MS. L. NICHOLLS) | LIMITED and SPRUCE FALLS |
| MR. D. WOOD) | POWER & PAPER COMPANY |
| MR. D. MacDONALD | ONTARIO FEDERATION OF LABOUR |
| MR. R. COTTON | BOISE CASCADE OF CANADA LTD. |
| MR. Y. GERVAIS) | ONTARIO TRAPPERS |
| MR. R. BARNES) | ASSOCIATION |
| MR. R. EDWARDS) | NORTHERN ONTARIO TOURIST |
| MR. B. McKERCHER) | OUTFITTERS ASSOCIATION |
| MR. L. GREENSPOON) | NORTHWATCH |
| MS. B. LLOYD) | |

APPEARANCES: (Cont'd)

| | |
|--------------------------|--|
| MR. J.W. ERICKSON, Q.C.) | RED LAKE-EAR FALLS JOINT |
| MR. B. BABCOCK) | MUNICIPAL COMMITTEE |
| MR. D. SCOTT) | NORTHWESTERN ONTARIO |
| MR. J.S. TAYLOR) | ASSOCIATED CHAMBERS OF COMMERCE |
| MR. J.W. HARBELL) | GREAT LAKES FOREST |
| MR. S.M. MAKUCH) | |
| MR. J. EBBS | ONTARIO PROFESSIONAL FORESTERS ASSOCIATION |
| MR. D. KING | VENTURE TOURISM ASSOCIATION OF ONTARIO |
| MR. D. COLBORNE | GRAND COUNCIL TREATY #3 |
| MR. R. REILLY | ONTARIO METIS & ABORIGINAL ASSOCIATION |
| MR. H. GRAHAM | CANADIAN INSTITUTE OF FORESTRY (CENTRAL ONTARIO SECTION) |
| MR. G.J. KINLIN | DEPARTMENT OF JUSTICE |
| MR. S.J. STEPINAC | MINISTRY OF NORTHERN DEVELOPMENT & MINES |
| MR. M. COATES | ONTARIO FORESTRY ASSOCIATION |
| MR. P. ODORIZZI | BEARDMORE-LAKE NIPIGON WATCHDOG SOCIETY |
| MR. R.L. AXFORD | CANADIAN ASSOCIATION OF SINGLE INDUSTRY TOWNS |
| MR. M.O. EDWARDS | FORT FRANCES CHAMBER OF COMMERCE |
| MR. P.D. McCUTCHEON | GEORGE NIXON |

(iii)

APPEARANCES: (Cont'd)

MR. C. BRUNETTA

NORTHWESTERN ONTARIO
TOURISM ASSOCIATION

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| <u>EDWARD ISKRA,</u> | |
| <u>ROBERT L. GALLOWAY,</u> | |
| <u>ROBERT A. CAMPBELL,</u> | |
| <u>MICHAEL EDWIN BUSS,</u> | |
| <u>PETER PHILLIP HYNARD,</u> | |
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| 661 | 1984 efficacy data results. | 18909 |
| 662 | Document entitled: Guidelines for the Aerial Application of Herbicides. | 18961 |
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| 666 | Document entitled: Posting of Pesticide Treated Areas. | 18973 |

1 ---Upon commencing at 9:05 a.m.

2 THE CHAIRMAN: Good morning. Be seated,
3 please.

4 Ms. Cronk?

5 MS. CRONK: Good morning, Mr. Chairman.

6 J. JOSEPH CHURCHER,
EDWARD ISKRA,
7 ROBERT L. GALLOWAY,
ROBERT A. CAMPBELL,
8 MICHAEL EDWIN BUSS,
PETER PHILLIP HYNARD,
9 CINDY STERN KRISHKA,
STEPHEN NICHOLSON, Resumed
10

11 CONTINUED CROSS-EXAMINATION BY MS. CRONK:

12 Q. Mr. Galloway, before I return to the
13 discussion I was having with Mr. Churcher, I understand
14 you have had an opportunity to look at a number of the
15 undertakings that I requested of you yesterday.

16 Perhaps you could outline for me, please,
17 and to the Board what the results of your inquiries
18 have been, and perhaps you can identify which request
19 we are speaking about and then give your response.

20 MR. GALLOWAY: A. Yes. The first
21 request I'll discuss was the request for the total
22 hectares sprayed between the period 1980 to '88 and
23 that number is 1,574,402. The next --

24 Q. Sorry, could I stop you there, Mr.
25 Galloway. Is that then the total number of hectares

1 sprayed with herbicides for tending purposes during
2 that eight-year period of time?

3 A. No, that's the total number in that
4 eight-year period of total insecticide and herbicide
5 sprayed in that period.

6 Q. Oh, thank you. So that just stopping
7 there for a moment. That question arose in the context
8 of Exhibit 640 which is the number of recordable and
9 reportable incidents on MNR pesticide operations in the
10 area of the undertaking?

11 A. Yes.

12 Q. All right. So that in the same
13 eight-year period of time then, it is 1.5-million
14 hectares that were sprayed?

15 A. That's correct.

16 Q. Thank you.

17 A. And in relationship to Exhibit 649,
18 Question No. 22, I was asked to check with my
19 colleagues if the costs for the northern region in that
20 question were applicable province-wide and, yes, they
21 are.

22 Q. All right. And just to reconfirm
23 what that discussion concerned, Question No. 22,
24 Exhibit 649 pertained; did it not, to your indication
25 of costs for the ground application of herbicides in

1 1988 dollars?

2 A. That's correct.

3 Q. And you provided the figures for the
4 northern region and you are now telling us that they
5 are approximately equivalent to those applying
6 elsewhere?

7 A. Yes, that's correct.

8 Q. Thank you.

9 A. The next -- the last one was in
10 relationship to Exhibit 653 which was the graph.

11 Q. Could you give me a moment, please.
12 Exhibit 653 was a reproduction of your graph in Exhibit
13 20 showing in hectares the herbicides used for chemical
14 cleaning in the years 1983 to 1988 and the hectares
15 treated manually for cleaning purposes in the same
16 years?

17 A. Yes.

18 Q. All right. And I had asked you
19 simply to confirm whether the numbers had been
20 transposed correctly, and were they?

21 A. Yes, they were transposed correctly.

22 Q. Thank you. Were there any other
23 undertakings outstanding that you wanted to speak to
24 this morning, Mr. Galloway, or is that it?

25 A. No, I believe that's all that I had.

1 Q. Thank you. Mr. Churcher, then, could
2 we return to the discussion we were having yesterday
3 afternoon.

4 MR. CHURCHER: A. Certainly.

5 Q. And could I ask you to go, if you
6 would please, sir, to Volume I of the evidence package
7 for Panel 13 and to your report.

8 And I would ask you to look specifically
9 at page 173 which, as I understand it, is the 1980
10 policy of the Ministry of Natural Resources regarding
11 the aerial application of insecticides for forest
12 management in Ontario. Do you have that?

13 A. Yes, I do.

14 Q. All right. Am I correct, Mr.
15 Churcher, that this policy stipulates that aerial
16 spraying may be undertaken for any of three purposes;
17 that is, aerial spraying of insecticides.

18 The first purpose being outbreak control,
19 the second being outbreak containment, and the third
20 outbreak protection -- sorry, foliage protection?

21 A. Yes, that's correct.

22 Q. All right. Those are successive
23 forms of activity; are they not, in the sense not that
24 they are sequential, but rather that they arise at
25 succeeding points in time?

1 A. Yes.

2 Q. Starting -- I'm sorry.

3 A. I said, depending on the size of the
4 epidemic that you are talking about.

5 Q. All right. And in classic terms
6 dealing with an insect epidemic, the first stage would
7 be the outbreak stage and that relates to the control
8 aspect, then we would move to containment and finally
9 we move to protection; is that correct?

10 A. That is correct.

11 Q. That's the progression?

12 A. Yes.

13 Q. And am I also correct that the 1980
14 policy is quite specific in stipulating that the
15 preferred strategy for dealing with insect infestations
16 is to be early intervention?

17 A. Yes, that is also correct.

18 Q. And am I correct in interpreting that
19 to mean -- the phrase 'early intervention' to mean
20 essentially outbreak control, the first stage of the
21 succession of steps?

22 A. Yes, where that's appropriate, then
23 that would be the preferred option.

24 Q. All right. And the terms of the
25 policy in that regard are expressed in mandatory terms;

1 are they not?

2 A. Can you repeat the question, please?

3 Q. To help you, could I direct you on
4 page 173 to the third paragraph?

5 A. Yes.

6 Q. And to the second sentence of that
7 paragraph which reads:

8 "The preferred strategy shall be early
9 intervention in which control action is
10 undertaken early in the outbreak phase
11 against a well-defined and localized
12 insect infestation."

13 Am I correct that that is the stipulation
14 which outlines what the preferred strategy is?

15 A. Yes, that's correct.

16 Q. And it does so in mandatory language;
17 does it not?

18 A. Yes, it does, with the operative
19 words being the infestation occurring in a
20 "...well-defined and localized insect..."

21 Q. "A localized infestation."

22 A. Yes. "...well-defined and localized
23 insect infestation."

24 Q. All right. And in those
25 circumstances that is a mandatory preferred strategy?

1 A. Yes.

2 Q. Thank you. The 1985 policy, which we
3 find at pages 147 to 148, contains similar terms; does
4 it not?

5 A. Yes, it does.

6 Q. Both as to the stages of progression
7 for dealing with an insect infestation and as well as
8 to the preferred strategy?

9 A. That's correct.

10 Q. They suggest, both policies; do they
11 not, that alternatives to the use of chemical
12 insecticides will be used where first alternatives are
13 available commercially--

14 A. Yes.

15 Q. --is that correct? And, secondly,
16 where alternatives are reasonably cost effective; is
17 that correct?

18 A. That's correct.

19 Q. With respect to the latter
20 suggestion, am I correct in interpreting that to refer
21 both to the economics of the proposed alternative and
22 as well the efficacy of the proposed alternative?

23 A. That's correct.

24 Q. And then finally, the policies, both
25 of them, the 1980 and the 1985 policies, suggest that

1 alternatives to the use of chemical insecticides will
2 be used where they are approved for use?

3 A. That's correct. That would be the
4 third criterion.

5 Q. All right. And if those three
6 criteria are met, then the policy suggests that
7 alternatives to chemical insecticides can and will be
8 used?

9 A. That's right.

10 Q. But it is in those circumstances?

11 A. Yes.

12 Q. All right. Would you agree with me -
13 and perhaps for the assistance of the Board and to have
14 it clear on the record - for example, with respect to
15 the 1985 policy set out at page 174, is it in the third
16 last paragraph that those criteria are set out? Is
17 that where we find them?

18 A. Yes, specifically on page 148.

19 Q. I'm sorry, I was giving you the 1980
20 one.

21 A. 1985 policy.

22 Q. Page 148?

23 A. Right.

24 Q. Thank you.

25 A. That's correct.

1 Q. Would you agree with me, Mr.

2 Churcher, that in order for the Ministry to carry out
3 the objectives of the policies, both the 1980 and 1985
4 policies, that being control, containment and
5 protection, the Ministry must have the option available
6 to it of using pest control technology which is the
7 most effective for those purposes?

8 A. Yes, I would agree with that.

9 Q. Would you also agree with me that the
10 technical capability of the Ministry to adequately
11 protect the timber resource from insect pests must be
12 maintained?

13 A. Can you repeat that one again,
14 please?

15 Q. Yes. Would you agree with me that
16 the technical capability of the Ministry to adequately
17 protect the timber resource from insect pests must be
18 maintained?

19 A. Yes, it would.

20 Q. Would you also agree that there are a
21 number of circumstances where the use of chemical
22 insecticides may be the only technically effective
23 option for dealing with an insect infestation?

24 A. Yes, I would agree with that.

25 Q. And I believe you indicated some of

1 those circumstances to the Board in your evidence last
2 week?

3 A. Yes, I did.

4 Q. And the one in particular that
5 springs to mind that you discussed was in a situation
6 where the number of insects, where the insect
7 population is very large?

8 A. That is one example, yes.

9 Q. All right. Having regard to all of
10 those factors, Mr. Churcher, in your professional
11 opinion would it not be preferable that clear authority
12 be provided to Ministry staff to use chemical
13 insecticides for pest control management in appropriate
14 circumstances?

15 A. Yes, that would be preferable.

16 Q. And as a professional is that what
17 you would like to see happen?

18 A. As a professional, yes, that would be
19 extremely useful.

20 Q. Would you agree with me that were
21 that to be done, that could co-exist with an expressed
22 preference for the use of biological insecticides where
23 they are appropriate?

24 A. Yes, it could.

25 Q. The two are not mutually exclusive?

1 A. Precisely.

2 Q. Would you also agree with me that
3 from a pest management perspective it would be
4 preferable to have, therefore, both chemical and
5 biological insecticides available and, in practical
6 terms, authorized for use when and where appropriate?

7 A. Yes, definitely.

8 Q. All right. To achieve outbreak
9 control, Mr. Churcher, what level of insect population
10 reduction do you have to achieve?

11 A. There isn't a specific number, but
12 the major point or the major objective in that case
13 would not be so much foliage protection as larval
14 mortality; in other words, you are attempting to kill
15 as many of the insects as you can to suppress the
16 population down to its normally low -- naturally low
17 levels.

18 Q. In the case of spruce budworm, is
19 there not a recognized standard for reductions in
20 insect population that has to be achieved to attain
21 outbreak control?

22 A. Not that I am aware of, no.

23 Q. All right. What level of reduction
24 in the larvae population then generally would be
25 regarded as acceptable looking at it from an outbreak

1 control point of view?

2 A. Obviously the optimum or the most you
3 would be shooting for would be a hundred per cent
4 larval mortality. I would view larval mortality
5 figures of say 85, 90, 95 per cent would be --
6 generally speaking would be acceptable or adequate from
7 on outbreak control point of view.

8 Q. Anything below 85 per cent then
9 would, with respect to outbreak control, be inadequate
10 and, if I can use the term, a failure in the sense of
11 achieving sufficient population reductions to
12 characterize it as being effective control of an
13 outbreak?

14 A. I guess that's why I am hesitant to
15 come up with a specific number that anything above 85
16 or 80 or 79, or whatever the number you want, is
17 adequate and anything below that would be termed a
18 failure. There are a number of other factors that
19 would be taken into account.

20 I guess the best way to look at it, to
21 explain it is to look at the two extremes. If we had
22 20 per cent larval mortality and we were trying to
23 suppress the population, yes, I would say that the
24 objectives had not been met. But if you had 80 per
25 cent larval mortality and the objective was to kill

1 insects, then I would say that by and large we met the
2 objectives.

3 Q. In each circumstance then is it your
4 evidence that you have to look at the extent of the
5 infestation population in order to determine what is a
6 "success or failure"?

7 A. Yes. That would be another
8 consideration.

9 Q. And when you, given the nature of
10 your training and responsibilities, look at the results
11 of measures taken in the field to cope with
12 infestations, in fact you look to see whether it has
13 been effective or adequate; do you not?

14 A. That's correct.

15 Q. All right. And in doing that do you
16 look at it from the point of view of achieving outbreak
17 control or protection or both?

18 A. It depends on the situation and
19 whatever the objectives were of that particular
20 program. For instance, in 1989 the spruce budworm
21 program that's currently under way in Thunder Bay and
22 the Nipigon Districts, the objective is foliage
23 protection, so we will examine the results and
24 interpret the results with that objective in mind; in
25 other words, how much foliage was saved.

1 However, to the west of here and close to
2 the Town of English River where we are doing a jack
3 pine budworm operation, or one will commence shortly,
4 the objective there is an excellent example of the
5 outbreak control strategy where the objective is not
6 necessarily to protect the foliage but to suppress the
7 population.

8 Q. Where is that? I'm sorry, Mr.
9 Churcher, where has that begun?

10 A. It's just east of the Town of English
11 River.

12 Q. That's this year?

13 A. Yes. The latest information I have
14 is that that operation should commence early next week.

15 Q. Is there not, Mr. Churcher, a
16 distinction between the objective or the standard which
17 applies when you are trying to achieve outbreak control
18 and that which applies when you are trying to achieve
19 foliage protection?

20 If you are looking at reductions in the
21 insect population, isn't it a different standard?

22 A. I'm not sure if standard is the right
23 word, but yes. Again, when you are talking about
24 foliage protection you are looking at the amount of
25 foliage that you had saved and not so much how many

1 bugs you have killed and --

2 Q. I'm sorry.

3 A. And in the case -- the example I gave
4 of the jack pine budworm operation or when you are
5 dealing with outbreak control, you are looking at
6 gaging your success with respect to how many insects
7 have been killed or the larval mortality, you are not
8 so much concerned with how much foliage you protected,
9 that is a secondary consideration.

10 Q. All right. Let's just take spruce
11 budworm for example. Would you agree with me that 80
12 per cent larval mortality would not be enough to
13 prevent subsequent expansion in an epidemic sense of
14 the insect?

15 A. I would think that you would have to
16 look at a very specific case before you could make that
17 judgment. In some cases 80 per cent might be adequate.
18 Usually the figures of larval mortality that are
19 expressed in a table such as I discussed in my direct
20 evidence, the larval mortality figures are larval
21 mortality due to treatment; in other words, how many
22 insects were killed because of the insecticide spray
23 program.

24 Q. Yes?

25 A. There are other mortality factors

1 that occur naturally. If we think back to the graph
2 that I drew, that even in the unsprayed areas there is
3 generally a reduction.

4 Q. I am talking about treatment here,
5 Mr. Churcher, all right, when you treat?

6 A. Go ahead.

7 Q. All right.

8 A. Yes.

9 Q. And I am suggesting to you that 80
10 per cent larval mortality would not be considered
11 sufficient to prevent subsequent expansion?

12 A. Not necessarily.

13 Q. Is there a general rule of thumb
14 which you use in approaching outbreak control to look
15 at that issue?

16 Do you have a general rule of thumb, a
17 general standard that you look at to determine whether
18 there has been a sufficient reduction in larvae
19 mortality?

20 A. I guess the final proof is in the
21 pudding and it comes that year or the following year
22 and if the population has spread elsewhere or there is
23 severe defoliation in other areas, then that is
24 probably the final success or failure measurement.

25 Q. All right. I agree, Mr. Churcher,

1 that that would be the proof in the final sense of the
2 success or failure assessment, but my question to you
3 was: Do you have a rule of thumb, a standard which you
4 use in approaching outbreak control, as distinct from
5 protection, as it applies to the reduction of larvae
6 mortality necessary to achieve outbreak control?

7 You have told me that in your opinion 80
8 per cent may not be sufficient. Do you have a rule of
9 thumb you use?

10 A. No, I do not.

11 Q. Are you saying then from your
12 perspective in looking at treatments the number can
13 change depending on each and every treatment area and
14 each and every treatment condition?

15 A. Yes, and on the specific
16 circumstances of that particular treatment.

17 Q. All right. And is that your
18 understanding of the approach that's taken in pest
19 control management in looking at outbreak control
20 issues, that it is variable from site to site and
21 depends entirely on the amount of insect population in
22 any given area?

23 A. Yes, in the field of forest pest
24 management at any rate.

25 Q. If then it was suggested by other

1 pest management professionals that as a general rule 80
2 per cent larval mortality is not considered enough to
3 prevent subsequent expansion of an insect infestation,
4 you would disagree?

5 A. Depending on the situation, yes, I
6 might.

7 Q. As a general rule you would disagree?

8 THE CHAIRMAN: Well, Ms. Cronk, do we get
9 very far talking generalities in the sense that what
10 may be a general rule to one person may not be a
11 general rule to another. In other words, you almost
12 have to define what degree of generality you are using?

13 MS. CRONK: I don't have to take the
14 point much further, Mr. Chairman. I suppose the point
15 is simply this: If subsequent witnesses in the field
16 suggest that there are general standards against which
17 these things are measured, I need to know, both in
18 fairness to Mr. Churcher and indeed to my clients,
19 whether those are standards he recognizes or not.

20 And my suggestion to you with that in
21 mind -- Mr. Chairman, may I put the question?

22 THE CHAIRMAN: Yes.

23 MS. CRONK: Q. With that in mind, Mr.
24 Churcher, I am simply suggesting to you - I think you
25 have already told me, I am simply asking for

1 confirmation - that if other pest managers were to
2 suggest that as a general rule 80 per cent larval
3 mortality was considered to be not enough to prevent
4 subsequent expansion of an infestation, you would not
5 agree that that was an appropriate general rule or
6 standard. Do I have your evidence correctly?

7 MR. CHURCHER: A. In a general way, yes.
8 Yes.

9 THE CHAIRMAN: You got a general answer.

10 MS. CRONK: Q. In a general way: Yes,
11 you do not agree? In a general way, yes I agree?

12 I am not trying to deal with semantics
13 here, I really want to know what your opinion is on
14 this?

15 MR. CHURCHER: A. Okay. Perhaps instead
16 of just saying yes or no, I should phrase my answer so
17 that there is no doubt.

18 I am not aware of a general standard. If
19 someone, somewhere an expert in the field has stated
20 that 80 per cent is the general standard and that
21 anything below 80 per cent would be a failure, in a
22 general manner, then I would disagree with that
23 statement.

24 Q. Thank you. That's of assistance.
25 Can we look now at the protection side of things, the

1 defoliation side of things?

2 A. Yes.

3 Q. And again let's look at spruce
4 budworm. Am I correct that there is a generally
5 recognized standard for measuring defoliation -- the
6 success of preventing defoliation with respect to
7 treatment for spruce budworm and white spruce, let's
8 deal with that first?

9 A. Again, to my knowledge there is no
10 generally accepted standard. Some provinces, some
11 jurisdictions have adopted a standard, specifically I
12 am thinking of New Brunswick. And for white spruce, as
13 you mentioned, I believe the standard in New Brunswick
14 is 60 per cent -- my apologies, 50 per cent.

15 Q. 50 per cent for white spruce?

16 A. For white spruce. I believe 60 per
17 cent is balsam fir. That is the standard that they
18 attempt to meet.

19 Q. Is there -- sorry.

20 A. In Ontario we have no such stated
21 standard that we are trying to attain a certain level
22 of foliage production.

23 Q. When you look at the efficacy data
24 for spruce budworm treatments that have been undertaken
25 in Ontario with respect to white spruce, is a 50 per

1 cent defoliation level often not referred to in the
2 efficacy data produced in this province?

3 A. Not that I am aware of.

4 Q. And you think balsam fir is 60 per
5 cent in New Brunswick but not in Ontario?

6 A. Yes, that's my recollection.

7 Q. All right.

8 A. In New Brunswick they have stated
9 that they want to retain at least 60 per cent of the
10 current year's growth.

11 Q. All right. Looking at the general
12 issue from your perspective of how you assess the
13 adequacy of any particular treatment for spruce
14 budworm, again looking at the defoliation side, is
15 there a standard below which you would conclude that
16 the treatment had been inadequate or unsuccessful?

17 A. When you compare the defoliation
18 level in the sprayed area with the corresponding
19 unsprayed area, then that would give you an indication
20 as to whether or not the level of foliage protection
21 attained would be satisfactory or unsatisfactory.

22 For instance, if we had 60 per cent
23 defoliation in one plot but in the corresponding
24 untreated plot the defoliation was a hundred per cent,
25 then, yes, we have attained something, we have saved 40

1 per cent foliage.

2 In the treated area, again, if the
3 defoliation was 60 per cent but in the unsprayed or
4 untreated area the defoliation was 64 per cent, then I
5 would say that we have attained very little. We've
6 saved 4 per cent foliage which could be just due to
7 natural variation.

8 Q. Is it always relative, Mr. Churcher,
9 or is there not a general rule of thumb that's applied
10 even in Ontario in assessing whether the treatment has
11 been sufficient to reduce or prevent defoliation?

12 A. I would lean to the former, that it
13 is always relative taking into account a number of
14 different factors, such as the exact timing of the
15 application, how many insects, what the the larval
16 population is, if we are dealing with a large larval
17 population or a small larval population.

18 Q. Why is there no standard in Ontario
19 or why is there not a range of standards, if that's
20 appropriate, to determine in general terms whether a
21 treatment to prevent defoliation has been successful or
22 not?

23 A. To my knowledge there has never been
24 any scientific studies to determine what that standard
25 should be, that no one has ever determined exactly how

1 much foliage is required to be protected or how much
2 foliage a tree needs to remain alive.

3 And that ultimately -- when we were in
4 the foliage protection phase of a program, that
5 ultimately is your long-term objective, is to keep the
6 tree alive. The way you measure that is by how much
7 foliage you have saved, but there is no study which
8 indicates that you need "x" per cent foliage to keep
9 that tree alive.

10 Q. How do you measure success then? Do
11 you always look at what happened on the control plot as
12 the untreated plot and compare that to what happened on
13 the treated plot?

14 A. Essentially, yes.

15 Q. All right.

16 A. A comparison of what would have
17 happened essentially if we had not sprayed versus what
18 did happen when we did spray.

19 Q. And in every circumstance there is
20 going to be a relationship, there is going to be a
21 comparison that you can make?

22 A. That's correct.

23 Q. And there would be a whole continuum
24 of results?

25 A. That's correct.

1 Q. All right. What I am suggesting to
2 you is that somewhere in that range of results from
3 zero difference between the treated and the untreated,
4 to a hundred per cent difference between the treated
5 and the untreated is there not, in your professional
6 experience, a point at which it can be said that the
7 treatment has not been effective for spruce budworm?

8 A. Yes, and I would say that that point
9 lies somewhere between 25 per cent and 75 per cent.

10 Q. Is it your evidence then, Mr.
11 Churcher, that if 25 per cent protection against
12 defoliation from spruce budworm is achieved that that
13 is an effective and adequate treatment in this
14 province?

15 A. Depending on the situation, yes, that
16 might very well be.

17 Q. Is that the norm, of not an
18 achievement but of what would be regarded as
19 acceptable?

20 A. In Ontario?

21 Q. Mm-hmm.

22 A. That --

23 MS. MURPHY: With respect, I think the
24 witness has told counsel several times there isn't a
25 norm, as I understand the witness.

1 MS. CRONK: I understand that, sir, but I
2 believe I am entitled to pursue this.

3 THE CHAIRMAN: Well, Ms. Murphy, he has
4 indicated that there is a range that he would consider
5 to be on the continuum between success and failure, and
6 I think Ms. Cronk is entitled to find out if within
7 that range there is a norm that he would consider a
8 norm. That's not to be taken that there is a norm in
9 Ontario for success in general.

10 MS. MURPHY: That's how I understood it
11 too.

12 MS. CRONK: Q. Mr. Churcher?

13 MR. CHURCHER: A. I think I still owe
14 you an answer but I have forgotten the question
15 precisely. Could you repeat that?

16 Q. I was asking you whether or not if 25
17 per cent defoliation protection was achieved in Ontario
18 as a norm that would be regarded as a successful
19 treatment against spruce budworm?

20 I am really asking you: Is it realistic
21 to give me a range as broad as 25 to 75 per cent and
22 suggest that 25 per cent would be considered a
23 successful protection level?

24 A. In my opinion, yes, that is
25 reasonable.

1 Q. And anything in between?

2 A. Yes.

3 Q. Are you familiar with that an
4 organization called the Eastern Spruce Budworm Council,
5 Mr. Churcher?

6 A. Yes, I am.

7 Q. Can you explain very briefly what
8 that council is?

9 A. It is a council or a committee made
10 up of representatives, as I believe I mentioned in
11 direct evidence, of representatives from Ontario,
12 Quebec, New Brunswick, Nova Scotia, the Province of
13 Newfoundland, the State of Maine, the U.S. Forest
14 Service and Forestry Canada.

15 It was originally composed of deputy
16 ministers or assistant deputy ministers, senior
17 management levels of each provincial and state
18 jurisdiction, and it was designed to enhance
19 communication and discussion between jurisdictions as
20 to how each province and state was going to deal with
21 and how they were dealing with the spruce budworm
22 infestations in their respective jurisdictions.

23 Q. And Ontario had representatives on
24 that council?

25 A. Yes.

1 Q. Does the council still exist?

2 A. Yes, it does.

3 Q. All right. Am I correct, Mr.

4 Churcher, that that council suggested as an appropriate
5 standard for measuring the adequacy of defoliation
6 protection achievements for spruce budworm a standard
7 of 50 per cent for white spruce?

8 A. I'm not aware that the council had or
9 has suggested that as a standard.

10 Q. And are you aware as to whether that
11 council has recommended as an applicable general
12 standard for measuring defoliation protection results
13 for balsam fir a percentage of 40 per cent, or do you
14 know?

15 A. No, I'm not aware although those
16 figures sound very -- are I believe the same figures
17 that I presented as the norm for the Province of New
18 Brunswick.

19 Q. I thought you told me 60 per cent for
20 balsam fir in New Brunswick. I'm suggesting 40.

21 A. I think we are talking about the same
22 thing, we are just using different words. I was
23 talking about saving 60 per cent of the foliage.

24 Q. Thank you.

25 A. I think you are talking about losing

1 40 per cent of the foliage which is--

2 Q. Thank you. I won't have that
3 difficulty on the 50.

4 A. There's a glass half full; there's a
5 glass half empty.

6 Q. You are not aware then of a specific
7 standard recommendation for balsam fir from that
8 council?

9 A. No, I'm not.

10 Q. All right. Were those the standards
11 that were recommended by that council, would that alter
12 your thinking as to what an appropriate general
13 standard would be for assessing defoliation protection
14 success with spruce budworm in Ontario?

15 A. No, it would not alter my thinking.
16 The standards -- the method that we evaluate in Ontario
17 is a method that has been developed in Ontario for the
18 Ontario situation in response to the infestation in
19 this province and I guess that is why I have difficulty
20 talking about general standards; what is applicable and
21 appropriate to New Brunswick may not be applicable and
22 appropriate in Ontario.

23 Q. Would you agree with me, Mr.
24 Churcher, or can we go this far: That if the
25 treatments that were done on spruce budworm in the area

1 of the undertaking consistently showed that only 25 per
2 cent of the white spruce was protected from
3 defoliation, that that would not be regarded overall as
4 being a sufficient level of protection?

5 If you got that in repeat treatments in
6 different areas, you wouldn't be too happy; would you?

7 A. Now, we are -- as I understood the
8 question you said 25 per cent of the white spruce that
9 was treated had adequate foliage protection. Now, we
10 are talking about something -- as I understood your
11 question, you were saying if we had a hundred trees and
12 we had adequate foliage protection on 25 per cent of
13 them; whereas before when I was using the figure 25 per
14 cent, I was talking about 25 per cent of the new growth
15 being protected, on any given tree on average we were
16 saving 25 per cent of the foliage.

17 Q. All right.

18 A. I'm not clear if we have changed
19 directions here.

20 Q. I'm sorry, that is fair. When
21 defoliation percentages are reported with respect to
22 efficacy data, for example, spruce budworm treatments,
23 which are they referring to when they give a
24 percentage, which are they taken to mean; is it a
25 percentage of new growth or is it a percentage of

1 species protected, number of trees protected?

2 A. It's new growth.

3 Q. All right. How much new growth on
4 average on a typical tree has been protected.

5 Q. All right. Let me put it to you then
6 on that basis. If in successive treatments in the area
7 of the undertaking for white spruce the achievement of
8 defoliation protection was only 25 per cent, you would
9 not regard that as being an adequate level of
10 protection of new growth; would you?

11 A. If it was consistent in successive
12 year after year, no, I would not.

13 Q. In fact you would want something a
14 lot higher; wouldn't you?

15 A. On average, yes, you would like your
16 average on a year to year basis to be higher.

17 Q. How specifically, given your position
18 with the Ministry, when you look at defoliation
19 efficacy data do you determine if a protection program
20 for white spruce, for example, has been adequate? Do
21 you do that on site-by-site basis?

22 A. Can you repeat that question again?
23 The first part, I'm not --

24 Q. How do you in your position with the
25 Ministry determine whether a particular spray program

1 for white spruce was successful; how do you make the
2 judgment that adequate protection was achieved?

3 A. You look at the results on a
4 site-to-site basis but your overall impression or the
5 overall judgment as to whether or not the protection
6 for that particular year was adequate or inadequate is
7 more of a general basis.

8 In any given year in any given program
9 you are going to have a range of results. On some
10 sites you will have good results; on some sites you
11 will have not quite so good results. And the final
12 judgment is dependent on your overall impression, were
13 there more good sites than not so good sites, if you
14 will.

15 Q. So if I understand what you are
16 saying, you look at the results on each site
17 individually, then you look at the overall results in
18 the aggregate and determine whether in the main they
19 were good or in the main they were not?

20 A. Yes. And you look at the other
21 factors that I discussed in direct evidence such as how
22 many -- the population that you are dealing with and
23 the weather parameters and the time of the spray and
24 all of those other parameters that go into affecting
25 the results or have an effect on the results you

1 obtain.

2 Q. And is that the same approach you
3 would use in assessing whether adequate protection of
4 balsam fir had been achieved from spruce budworm?

5 A. Yes, and the same approach for any
6 insect in a spray program.

7 Q. All right. I will come back to this
8 in a moment then, Mr. Churcher. Dealing for the moment
9 with biological control measures generally, your
10 evidence in your report has been clearly they include
11 bacteria; we know that BT is one of the
12 bacteriological insecticides used in that respect?

13 A. Yes, that's correct.

14 Q. They also include viruses and fungi
15 according to your report?

16 A. Yes, that's correct as well.

17 Q. All right. Could I ask you to go
18 first to Exhibit 650 which is -- or to the response to
19 OFIA Interrogatory No. 11. Do you have that, Mr.
20 Churcher?

21 A. Yes, I do.

22 Q. You were asked in this interrogatory,
23 or at least the Ministry was asked, to indicate how
24 many viruses and fungi have been used by the MNR in the
25 area of the undertaking in the last five years; that

1 is, 1983 to 1988, and you were asked in sub (b) how
2 much area was treated per annum using those techniques
3 in the last five years, and you were requested to
4 indicate what compounds were used?

5 A. Yes.

6 Q. All right. In the answer, am I
7 correct, that it was confirmed that there have been no
8 instances of the use of fungi as an insecticidal agent
9 in the years 1983 to 1987 in the area of the
10 undertaking?

11 A. That is correct.

12 Q. All right. And if we turn to the
13 table which appears on page 3, do we see there a list
14 of the viruses used?

15 A. Yes.

16 Q. And am I right that of the three
17 viruses named each is very specific to insect type or
18 insect species?

19 A. That is correct.

20 Q. For example, Leconte virus was the
21 one most commonly used of the instances recorded in
22 this table?

23 A. Yes.

24 Q. And am I correct that that works only
25 for a particular kind of insect; that is, the

1 red-headed pine saw fly?

2 A. That is correct.

3 Q. And gypsy moth MPV, for example,
4 works only on gypsy moth?

5 A. That is correct.

6 Q. And the same thing with the final
7 virus indicated on the table?

8 A. Yes, the Sertifervirus is only
9 applicable to European pine saw fly.

10 Q. All right. Am I correct then that
11 viruses are not effective agents to address a variety
12 of insect problems, in each case they are specific to a
13 particular insect?

14 A. That's correct.

15 Q. Okay. And then looking at BT, you
16 have already indicated to the Board that to be
17 effective it must be ingested; is that correct, by the
18 insect?

19 A. That is correct.

20 Q. That is to be distinguished from the
21 way many chemical insecticides work which work on the
22 basis of contact with the insect?

23 A. Yes, some chemical insecticides have
24 that mode of action.

25 Q. It has been suggested to me, Mr.

1 Churcher, with respect to BT that you could actually
2 paint an insect -- an individual insect with BT on the
3 outside and unless the insect ingested some of the
4 compound, it would be perfectly safe; is that correct?

5 A. In general terms, yes, that's
6 correct, although recent research has indicated that
7 spruce budworm is a very clean insect and is constantly
8 grooming itself, so if you painted BT on the insect, it
9 would likely ingest the BT and have that effect.

10 But...

11 Q. Are you suggesting we should be
12 cultivating good groomers in the province? No, I
13 understand your point.

14 In general, however--

15 A. Yes.

16 Q. --that dramatizes the problem, but
17 that is correct?

18 A. Yes. That is correct, yes.

19 Q. Is it also correct that BT-like
20 viruses is also restrictive in its application to
21 particular insect types; namely, the moth and butterfly
22 family?

23 A. That is correct.

24 Q. It is not effective against a whole
25 host of other insect species; am I right?

1 A. Yes, that's right.

2 Q. And it's not registered for such
3 purposes with respect to a very large category of other
4 insects?

5 A. That is also correct.

6 Q. And, for example, that includes bark
7 beetles, wasps, saw flies, seed insects, BT is not
8 registered or effective for use against those insects?

9 A. It may be effective on some seed
10 insects, again, that are of the order lepidoptera or
11 those insects that become moths and butterflies but
12 generally, yes, you are correct, it's not effective on
13 wasps, saw flies, beetles, weevils.

14 Q. Nor is it registered or authorized
15 for use for that purpose in forestry applications in
16 Ontario?

17 A. That's correct.

18 Q. All right. Do you know, Mr.
19 Churcher, how many major insect pests in terms of type
20 are active in the area of the undertaking in general
21 terms; do you know?

22 A. I would say it would be roughly 15,
23 somewhere between 10 and 20, probably 15.

24 Q. Okay. And is that kind of
25 information available if one wanted to go through the

1 reports and compile it from the annual reports of the
2 forest insect and disease surveys conducted by the
3 Great Lakes Forestry Centre?

4 A. Yes, that is where I would determine
5 that information.

6 Q. All right. And of those major pests
7 active in the area of the undertaking, for how many, in
8 approximate terms, are there effective biological
9 insecticides currently authorized for use?

10 A. I would have to go to the most recent
11 report from the CFS to determine exactly which 15
12 insects were of current concern and then determine.

13 Most of the major insects such as jack
14 pine budworm, spruce budworm and gypsy moth -- it is
15 fair to characterize most of the major forest pests as
16 being defoliators, those that eat leaves and most of
17 those tend to be in the order lepidoptera or turn into
18 moths and butterflies and, therefore, BT would be
19 effective on those.

20 There are a number of other insects,
21 however, that in any given year may cause a problem and
22 they may or may not be in that order and so, therefore,
23 they or may not be susceptible to BT or other
24 biological insecticides.

25 Q. All right.

1 A. If I had a list I could quickly go
2 through and indicate which ones were and which ones
3 weren't.

4 Q. Am I correct that there are a number
5 of major pest or insect types active in the area of the
6 undertaking that are periodic in terms of their
7 outbreak?

8 A. Yes.

9 Q. All right. As distinct from the
10 larger epidemic concerns that we have seen in the last
11 ten years or so with spruce budworm, jack pine budworm,
12 species of that kind?

13 A. That's correct.

14 Q. All right. And my question to you
15 was, and I take your point that you would have to
16 actually go through and compare each list, but my
17 question to you was not directed to those which are
18 current as we speak today a problem at the moment, all
19 right.

20 Are there, for example -- or sorry, is
21 there, for example, an effective biological insecticide
22 currently authorized for use against such items as or
23 such species types as the eastern pine shoot borer it's
24 called; is there one as far as you are aware?

25 A. No, not --

1 Q. What about the yellow-headed spruce
2 saw fly?
3 A. No.
4 Q. Black army cut worm?
5 A. No, not registered for use.
6 Q. Fall web worm?
7 A. No.
8 Q. White pine weevil?
9 A. No.
10 Q. Mountain ash saw fly?
11 A. No.
12 Q. Oak leaf shredder?
13 A. I believe not registered for use.
14 Q. All right. And we could go through
15 it. My point is not to do that one by one, Mr.
16 Churcher, but can we agree that for a significant
17 number of the major pests active in the area of the
18 undertaking, albeit on a periodic basis, not
19 necessarily ten o'clock this morning, but -- that are
20 ranked or considered to be major pest problems in the
21 area of the undertaking, there is in fact no biological
22 insecticide effective and authorized for use against a
23 very large number of those species?
24 A. Yes, that is a correct statement.
25 Q. All right. And am I correct that

1 conversely there are chemicals effective and authorized
2 for use in Ontario in the area of the undertaking with
3 respect again to a large number of those major pests?

4 A. For most, if not all.

5 Q. Does that not mean that were an
6 infestation of one of those major pests to occur in the
7 near future, we would be in a position in the area of
8 the undertaking where we had no biological response
9 agent authorized for use in respect of it?

10 A. Yes.

11 Q. Could I ask you now to go to
12 exhibit -- let me back up. My questions were put to
13 you on the basis of the major pests active in the area
14 of the undertaking.

15 Am I also correct that in the surveys and
16 reports prepared, for example, by the Great Lakes
17 Forestry Centre, there are in addition to the major
18 pests, a whole category of pests considered to be
19 noteworthy in terms of activity and threat in the area
20 of the undertaking?

21 A. Yes, that's correct.

22 Q. All right. And does the same
23 principle I put to you apply to those insects as well;
24 that is, that there is currently no effective and
25 authorized biological agent available for use in

1 forestry in Ontario to respond to a large number of
2 those?

3 A. Without reviewing the list, yes, that
4 would be my impression.

5 Q. All right. And conversely, there are
6 chemical response agents that are both effective and
7 authorized for use in respect of those insect types?

8 A. Yes.

9 Q. Could I ask you next if you would,
10 Mr. Churcher, please, to go to Exhibit 632 which was a
11 package of interrogatory responses and the one I direct
12 your attention to is OFIA Interrogatory No. 8.

13 MS. MURPHY: No. 632?

14 MS. CRONK: 632, yes.

15 Q. Do you have that, Mr. Churcher?

16 MR. CHURCHER: A. Yes, I do.

17 Q. All right. I direct your attention
18 first to the first request 8(a) which was to provide a
19 breakdown by region within the area of the undertaking
20 and by insect species of the hectares treated first
21 with BT and then secondly with chemicals for the years
22 1976 to 1988 inclusive.

23 And if we go to the response beginning at
24 the bottom of that page, that table has been provided;
25 am I correct?

1 A. Yes, it has.

2 Q. And, in addition, tables have been
3 provided which set out the breakdown of biological and
4 chemical insecticide used for those years; that is,
5 1976 to 1988 for each region?

6 A. Yes.

7 Q. So we have three forms of tabular
8 information, if I can put it that way?

9 A. Yes, that's correct.

10 Q. All right. And could we go then to
11 the first table which is Table 2. This, as I
12 understand it, is a revised table from what appears in
13 your evidence package?

14 A. That's correct, it's the new page 107
15 from Volume I of Panel 13.

16 Q. Thank you. And dealing with it, am I
17 correct that it indicates what we are looking at in the
18 columns is first the total number of hectares treated
19 in the years 1976 to 1988 with both BT and chemical
20 insecticides; that is, an aggregate hectares figure?

21 A. Yes.

22 Q. And then you have given us the
23 percentage breakout as between which treatment applied?

24 A. That's correct.

25 Q. And the breakdown with respect to

1 insect species treated is in the next two pages?

2 A. That's correct.

3 Q. All right. Could you go to the first
4 of the next two pages, please. Looking at the far
5 right-hand column, Mr. Churcher, this is the column -
6 if I'm reading the table correctly - that gives us the
7 actual number of hectares treated either with
8 biological insecticides or chemical insecticides and
9 the two numbers in the aggregate are the numbers which
10 appear in your summary chart; is that correct?

11 A. Yes.

12 Q. All right. And the hectares treated
13 with chemicals are shown in brackets?

14 A. That's correct.

15 Q. All right. Could I ask you to go,
16 just for clarification purposes, to the year 1984 on
17 this page?

18 A. Yes.

19 Q. And if you look at column 3, it
20 suggested to me that some 3,097 hectares were treated
21 in respect of spruce budworm using biological
22 insecticides and some 600 hectares were treated with
23 respect to spruce budworm using chemical insecticides
24 in 1984; is that correct?

25 A. That is correct. In the northern

1 regions specifically.

2 Q. Yes and if we come over to the far
3 right-hand column then. Should that 600 hectare figure
4 be in brackets indicating chemical use?

5 A. Yes, you are quite right.

6 Q. Thank you. Let me just make the
7 correction right on our page, Mr. Churcher. And the
8 only reason I'm interested in that, Mr. Churcher, is to
9 make sure my math is right this time.

10 And these data confirm, as you have
11 indicated to the Board in other evidence, that no
12 chemical insecticides have been used anywhere in the
13 area of the undertaking, the last year was 1984?

14 A. There have been no chemical
15 insecticides aerially applied in the area of the
16 undertaking.

17 Q. All right. Looking at the numbers,
18 the aggregate numbers, can you confirm for me that the
19 years reflected on this table, Mr. Churcher, in the
20 years -- well, let's just take 1976 to 1984 first, that
21 nine-year period?

22 A. Yes.

23 Q. What we have done is we have simply
24 added the total hectares treated with chemicals and
25 compared it with the total hectares treated with

1 biological agents, you could do it by applying the
2 percentage.

3 Can you confirm for me that the hectares
4 treated chemically were 75,415 and the hectares treated
5 with biological agents was 27,776 in total?

6 MR. FREIDIN: Sorry, Ms. Cronk, was that
7 the period '76 --

8 MS. CRONK: To 1984, that nine years.

9 MR. FREIDIN: Thank you.

10 MS. CRONK: Q. Sorry, Mr. Churcher, are
11 you having to do this item by item on that composite
12 table?

13 MR. CHURCHER: A. Yes, I am.

14 Q. Well, can I just give you the numbers
15 now and you can check it and confirm it for me later
16 then rather than take the Board's time?

17 A. Certainly.

18 Q. Thank you. And can we do the same
19 exercise in the years 1985 to 1988, that four-year
20 period. Obviously we know that no hectares were
21 treated with chemical insecticides and I suggest that
22 the total number of hectares treated with biological
23 agents was 1,236,477 hectares.

24 A. 1,236...?

25 Q. 477 hectares?

1 A. Okay. And could you give me the
2 numbers again for '76 to '84 that you've driven?

3 Q. Treated with chemicals, 75,415
4 hectares?

5 A. Yes.

6 Q. Treated with biological agents,
7 27,776.

8 A. Okay. I have already computed the
9 BT -- the biological and you are correct, 27,776 is
10 accurate and I will check the others at this morning's
11 break.

12 Q. Thank you very much.

13 A. I should also stipulate that, as
14 noted in the title for that table, that is the total
15 area in the entire province of Ontario not just
16 specifically the area of the undertaking.

17 Q. Thank you, all right. In relative
18 terms, however, assuming those figures are correct, Mr.
19 Churcher - and I will come in a moment to the reasons
20 why it might be the case - but in relative terms, it's
21 clear that in the last four years; that is, from 1984 a
22 significantly larger area of land has been treated with
23 biological insecticides than had been treated in total
24 by either method or by both in the preceding nine
25 years?

1 A. Yes, that's correct.

2 Q. All right. And in fairness; that is,
3 the last four years have also been years in which
4 serious insect infestations have been experienced with
5 a number of species; isn't that so?

6 A. That is correct as well.

7 Q. And that was true prior to 1984 but
8 not to the same areal extent?

9 A. Precisely.

10 Q. All right. Could we go to
11 specifically to spruce budworm and you will recall
12 yesterday that I had indicated to the Board that there
13 was data provided in response to the interrogatories
14 that specifically dealt with the extent of the spruce
15 budworm infestation and the pattern of what is
16 happening today and has been happening for the last
17 couple of years.

18 Could I ask you to go first to Exhibit
19 656 which is OFIA -- the response to OFIA Interrogatory
20 No. 5.

21 THE CHAIRMAN: Sorry, what number was
22 that again?

23 MS. CRONK: 656, Mr. Chairman.

24 THE CHAIRMAN: Thank you.

25 MS. CRONK: Q. You were asked, or at

1 least the Ministry was asked, Mr. Churcher, to provide
2 figures for the extent of various insect infestations
3 for specific regions in the years 1936 to 19 -- 36 must
4 be a typo, surely I didn't ask that far back; did I?

5 A. Yes, you did.

6 Q. I did, I see. Maybe it was a typo
7 from our offices. For a considerable period of time?

8 A. Yes.

9 Q. Right. And if you can go to page 88
10 of your report.

11 MS. CRONK: I don't know that the Board
12 need go to that, Mr. Chairman.

13 Q. But am I correct that the figures
14 showing in graph form the trends for insect
15 infestations for spruce budworm, tent caterpillar, jack
16 pine budworm and gypsy moth defoliation were given for
17 the years 1936--

18 A. Yes.

19 Q. --to 1988?

20 A. That is true for the first three
21 except gypsy moth which, of course, only begins in
22 1981.

23 Q. All right. So what you were really
24 being asked to do was to produce similar figures for
25 other regions for the same years that you had already

1 given in your report?

2 A. That's right.

3 Q. All right. And if we go to page 3 of
4 this interrogatory response, do we have there in
5 tabular form in the column entitled total, an
6 indication of the extent of significant defoliation
7 caused by spruce budworm in the years 1967 to 1988?

8 A. That's correct.

9 Q. All right. And you will recall some
10 questions specifically, or at least the issue coming up
11 yesterday as to the extent of the spruce budworm
12 problem.

13 And am I correct, just looking at the --
14 sorry, just looking at the numbers in the far
15 right-hand column, it's clear that there was a
16 significant rise in infestation with this insect
17 beginning in the early 1970s, about 1970, late 1969?

18 A. Yes, that's correct.

19 Q. That it continued to rise more or
20 less with one small reduction in 1973, it continued to
21 rise really from 1969 through to 1981 with the peaking
22 experienced in the years 1979, 1980 and '81?

23 A. That's correct.

24 Q. Then in the years 1982 to 1984, the
25 extent of the defoliation was relatively constant at

1 about 8 or 9-million hectares?

2 A. Yes.

3 Q. And that is still a very significant
4 infestation problem; is it not?

5 A. Definitely.

6 Q. And from 1985 to 1988 the extent of
7 defoliation problem has been dropping although 1985
8 represents again a rise from 8-million in '84 to
9 12-million in 1985?

10 A. That's correct.

11 Q. And if we look at what has been
12 happening in the last three years, the extent of the
13 defoliation has been dropping?

14 A. Yes.

15 Q. But in 1988 with a defoliation figure
16 of over 5-million hectares, would you agree that that
17 is still a significant, although not as significant as
18 was formally the case, still a significant infestation
19 problem?

20 A. Most definitely.

21 Q. All right. Now, as I understand your
22 evidence-in-chief with respect to spruce budworm, you
23 told the Board that it is cyclical and that an epidemic
24 can last 20 to 30 years across the province as a whole?

25 A. Yes.

1 Q. And that major effects in any area
2 would be felt over five years; is that your evidence?

3 A. Yes. In a very specific area, yes.

4 Q. All right. Would you agree with me
5 that five years is really a minimum, it depends on the
6 amount of spruce present in the area?

7 A. Oh, definitely. When I was speaking
8 of five years I was thinking mainly of balsam fir, if
9 the stand was predominantly balsam fir. If the stand
10 is a higher concentration of spruce, then in that
11 particular stand it can last eight -- seven, eight,
12 nine years.

13 Q. All right. And looking then at the
14 information provided in this interrogatory response,
15 does that mean that we are now at year 19 of a 20 or
16 30-year epidemic?

17 A. Yes.

18 Q. All right. How frequently does the
19 cycle repeat itself? First of all, is the cycle we are
20 looking at 20 to 30 years, that is the extent of
21 epidemic?

22 A. That range, yes, across the province
23 yes he.

24 Q. All right. That being the cycle, how
25 often does it repeat itself historically?

1 A. Looking back -- again looking at page
2 88 of the evidence, Figure 1, in that 50-year period
3 that we have covered, I would interpret those results
4 as seeing two major cycles. So, in other words,
5 roughly 30 years, 35 years perhaps.

6 Q. Are we on the downswing of one now?

7 A. Yes, we are.

8 Q. All right. Assuming that no anomaly
9 has occurred in 1985 reoccurs?

10 A. That's correct.

11 Q. All right. Is there any particular
12 explanation for the rise in 1985 that you can offer?

13 A. We are looking at provincial figures
14 there. I think if we go back to page 3 of the exhibit,
15 or the response to the interrogatory, when we break it
16 down into northwestern Ontario and northeastern
17 Ontario, we essentially had two different or distinct
18 infestations and the dynamics of each were quite
19 different.

20 1985 you will note that there was a
21 marked increase in the infestation in northwestern
22 Ontario.

23 In fact, it had been increasing gradually
24 since about 1983 and the infestation in northwestern
25 Ontario peaked in 1985, and that has collapsed or has

1 begun to reduce since then.

2 Q. All right. Then dealing with the
3 balance of the interrogatory response, if we turn to
4 the last page we have similar information with respect
5 to jack pine budworm; is that correct?

6 A. Yes.

7 Q. And am I correct in interpreting
8 these figures, that it appears that the current
9 outbreak began to taper off in 1986?

10 A. Yes, that would be the case in
11 northerneastern Ontario; however, I believe in
12 northwestern Ontario it hit its peak in 1986.

13 Q. Okay. And just looking at the total
14 figures--

15 A. Mm-hmm.

16 Q. --while there was in 1987 a
17 significant drop in the extent of defoliation over that
18 experienced in the prior year, it was on the rise again
19 in 1988?

20 A. Yes, there was a slight increase in
21 '88.

22 Q. Am I correct that that rise in 1988
23 was unexpected?

24 A. Yes, you are.

25 Q. Am I also correct that jack pine

1 budworm comes and goes sporadically, there is not as
2 clear a cyclical pattern as there is in the case of
3 spruce budworm?

4 A. Yes, that's correct.

5 Q. All right. What is its cycle based
6 on past experience in the province, or is there really
7 no pattern that you can suggest to the Board?

8 A. There have been a number of
9 suggestions as to what factors instigate an outbreak
10 and they tend to be drought conditions which tends to
11 induce a lot of male flower production on the jack pine
12 which then, in turn, the jack pine budworm feeds on the
13 high protein pollen of those male flowers.

14 There is an increased survivability in
15 the jack pine budworm larva; in other words, more of
16 them survive, and then you tend to have an outbreak of
17 the jack pine budworm in that year.

18 Q. Having --

19 A. It seems to be linked -- in short, it
20 seems to be linked very closely with the number of male
21 flowers on a jack pine.

22 Q. Was there last summer a drought
23 experienced in other than the southern portion of the
24 area of the undertaking?

25 A. No, drought conditions I believe,

1 although possibly not as severe, extended also across
2 northern Ontario.

3 Q. All right. Would you then anticipate
4 that the insect population of jack pine budworm would
5 be on the rise in 1989 as well in consequence of the
6 drought last year, or would we have seen the effect
7 last year?

8 A. What we saw last year was a portion
9 of that, was as a result of the weather conditions; the
10 hot, dry temperature was very conducive to larva
11 basking in the sun and eating and feeding on a lot of
12 foliage, and that is why there was a larger than
13 anticipated area defoliation.

14 Now, the effects of the drought that was
15 experienced last year may take one or two or three
16 years if it takes any effect whatsoever. The tree will
17 respond this year to last year's drought by putting out
18 more male flowers. You may see higher larval
19 survivability this year and, hence, you may see an
20 increase next year.

21 Q. What is your own expectation? Do you
22 believe the numbers will be up this year or will we see
23 a continuing drop, or do you have a perspective on it?

24 A. The jack pine budworm, because of its
25 variability, is very hard to predict, and so I don't

1 really have any expectation one way or the other,
2 whether it is going to drop or increase.

3 Q. That's fair.

4 A. I guess I wouldn't be surprised to
5 see either.

6 Q. Thank you. Could I ask you now, if
7 you would, Mr. Churcher, please, to go to the efficacy
8 data that was marked as Exhibit 659 yesterday.

9 And dealing, Mr. Churcher, with the first
10 two pages of this exhibit, first, they correspond to
11 some of the information produced in the interrogatory
12 response to OFIA Question No. 8?

13 A. That's correct.

14 Q. All right. And the reason they have
15 been produced here is simply because in the
16 interrogatory response that we received it is just a
17 matter of convenient future reference. In the far
18 right-hand column the percentages were set out and in
19 the copy filed with the Board, Exhibit 8, they were
20 not?

21 A. Oh, okay. I assume that the
22 photocopier didn't pick up that far right edge of the
23 paper.

24 Q. That could well be it. There are a
25 number of efficacy data documents set out in this

1 exhibit and, am I correct, Mr. Churcher, that in
2 Interrogatory No. 8 from the OFIA and the OLMA you were
3 requested to provide the available efficacy data in the
4 possession of the Ministry by tree species and
5 treatment regarding the biological and chemical
6 treatments referred to in your evidence package?

7 A. Yes, that's correct.

8 Q. All right. And if we - I don't know
9 that the Board needs to go to this - but am I right
10 that the response was that the efficacy data for all
11 operations listed in Table 1 and 2, pages 106 and 107
12 of Panel 13, was provided?

13 A. Yes, that's correct.

14 Q. And that included some seven
15 documents relating specifically to the spruce budworm
16 situation in Ontario in the years 1976 to 1982, some
17 six papers relating to spruce budworm in Ontario from
18 1983 to 1988, two papers with respect to forest tent
19 caterpillar, five with respect to oak leaf shredder,
20 three for jack pine and four for gypsy moth?

21 A. Yes. And also one paper in 1976 that
22 dealt with forest tent caterpillar and Saratoga
23 spittlebug.

24 Q. Sorry, I missed that. All right. If
25 we could deal first with forest tent caterpillar, and I

1 hope to go through these relatively quickly, Mr.
2 Churcher, if we can.

3 A. Yes.

4 Q. All of the efficacy documents have
5 not been included in this bundle, but a number have for
6 each insect. And if we could deal first with tent
7 caterpillar, am I right that the 1986 efficacy report
8 begins at page 3?

9 A. Yes.

10 Q. And am I also right that in the
11 spring of that year; that is 1976, although it had been
12 intended to conduct spray conditions, when the
13 surveyors actually went out they couldn't find larval
14 populations of any significance in the proposed spray
15 area so there was in fact in that year no spray program
16 undertaken?

17 A. That is correct.

18 Q. And then the 1977 results commence in
19 report form at page 6?

20 A. Yes.

21 Q. And am I right that in the program
22 used that year for this insect both chemicals and BT
23 were used?

24 A. That's correct.

25 Q. And if we go to page 10, I would

1 direct your attention to the discussion of the results
2 from the chemical treatments that were applied. And
3 specifically starting about halfway down in the second
4 full paragraph on that page, am I correct that with
5 respect to the chemical orthene it was suggested that
6 it provided excellent results?

7 A. Yes.

8 Q. And with respect to the chemical
9 dylox, that it provided acceptable results particularly
10 since most of the defoliation was caused by high
11 populations of -- I believe that is spruce budworm?

12 A. No, it's not.

13 Q. It is another insect?

14 A. Yes.

15 Q. Thanks.

16 A. Closely related, same genus,
17 choristoneura, but a different insect.

18 Q. All right. So the conclusions with
19 respect to the chemical treatments were essentially
20 that they had achieved very effective results?

21 A. Yes.

22 Q. All right. And then in the
23 discussion of the results achieved with BT it is
24 indicated the results were somewhat variable but
25 overall the treatments were "reasonably effective"?

1 A. That's correct.

2 Q. And if we look at pages 12 and 13, do
3 we see there in tabular form the actual results
4 measured?

5 A. Yes.

6 Q. All right. And as this is the first
7 data set of this kind that we will be looking at,
8 perhaps we should take a minute and make sure that we
9 are talking the same language when we look at the
10 results as reported.

11 So looking at page 12, the first column
12 on the left indicates the nature of the treatment; is
13 that correct?

14 A. That's correct.

15 Q. As well as the application rate; am I
16 correct?

17 A. Yes.

18 Q. The -- if we could move over to the
19 right-hand side, the far right-hand column indicates
20 the per cent defoliation which occurred on both the
21 areas treated and the areas untreated; is that correct?

22 A. That's correct.

23 Q. And is it your evidence that that
24 percentage relates to the percentage of defoliation in
25 new growth as distinct from old?

1 A. Well, in this case, since we are
2 talking about the forest tent caterpillar and we are
3 talking about hardwood trees, there is only new growth;
4 there is no such thing as old growth.

5 Q. All right. Generally speaking, in
6 data reports of this kind, does the percentage
7 defoliation column apply to new growth or to old
8 growth, or what is your understanding?

9 A. It depends on the insect.

10 Q. All right.

11 A. If we were looking at results from a
12 saw fly infestation, saw flies tend to prefer and feed
13 on old growth so; therefore, that is what you are
14 protecting and that's what the defoliation results
15 would be measuring and would represent.

16 Q. What about spruce budworm?

17 A. It prefers and feeds almost entirely
18 on the new growth.

19 Q. All right, that's fine.

20 A. The current year's growth, the
21 current shoots.

22 Q. All right. So that am I correct that
23 the percentages that appear in the last column
24 establish how effective the treatment was, whatever
25 kind of treatment it was, in protecting the species

1 that is attacked or the growth that is attacked by the
2 insect under discussion?

3 A. That is correct, yes.

4 Q. All right. And the column
5 immediately beside it to the left indicates the degree
6 of insect population reduction achieved?

7 A. Yes.

8 Q. All right. And those are the two
9 measures that are looked at in assessing the adequacy
10 of a treatment; am I right?

11 A. That's correct.

12 Q. How many insects died and how bad was
13 the defoliation?

14 A. That's correct.

15 Q. All right. Dealing then with these
16 results, 1977 results for this insect, on page 12, am I
17 right that the chemical results are set out on both the
18 treated and the untreated plots?

19 A. That's correct.

20 Q. The untreated plots are signified by
21 the word 'check' at the bottom--

22 A. Yes.

23 Q. --of the chart? And am I correct
24 that these results indicate excellent foliage
25 protection results from the use of these chemicals?

1 A. Yes, I would characterize them that
2 way.

3 Q. Okay.

4 A. As noted -- and as you have already
5 noted, the results for dylox, using the chemical
6 insecticide dylox, it was 32 per cent defoliation but
7 much of that was a result of the feeding by another
8 insect that was already present.

9 Q. That was already present before the
10 spray took place?

11 A. Yes, that's my understanding.

12 Q. All right. And if we look to the
13 next page, do we see in tabular form the results for
14 the treatments of BT?

15 A. Yes.

16 Q. All right. And can we agree that
17 although the results are not quite -- for defoliation,
18 although the results are not quite as good as those
19 achieved with chemicals, they are nonetheless certainly
20 acceptable?

21 A. Yes, that's correct.

22 Q. All right. And if we look at the
23 population reduction declines, the results for chemical
24 and BT, can we agree again that very good results were
25 achieved, generally speaking, with the use of dimolene

1 and orthene, the chemicals; 93 per cent, 92 per cent,
2 70 per cent and 34 per cent?

3 A. I am sorry, could --

4 Q. I am back on page 12.

5 A. Right.

6 Q. I am looking at the percentage
7 population reduction due to treatment.

8 A. Okay.

9 Q. And I am suggesting the results were
10 very good.

11 A. Yes.

12 Q. And if we look at the results with BT
13 set out on page 13, can we agree again that they were
14 lower than the results achieved with chemicals but,
15 again, certainly acceptable?

16 A. Generally speaking, yes.

17 Q. All right. And could we go next then
18 to the 1978 results for this insect. They begin on
19 page 7-- on page 14, I'm sorry, and without taking the
20 Board through the text of the document, can you confirm
21 for me that the results in 1978 were considered to be
22 inconclusive?

23 A. That's correct.

24 Q. And that is confirmed -- that was
25 because the insect populations were low both in the

1 treated and the untreated areas?

2 A. Yes, in that year the population
3 crashed, so it was -- you had low populations in both
4 areas.

5 Q. All right.

6 A. Low defoliation in both areas.

7 Q. And for that reason no spraying for
8 1979 was undertaken?

9 A. That is correct.

10 Q. All right. In essence, as you
11 indicated, the outbreak collapsed or ended in 1978?

12 A. Yes.

13 Q. We now have a new outbreak of this
14 insect; do we not?

15 A. Yes, we do.

16 Q. BT is being used now?

17 A. The Ministry of Natural Resources is
18 not undertaking any aerial spray programs for
19 protection of trees from forest tent caterpillar to
20 date in this outbreak.

21 Q. All right, I am sorry. Can we agree,
22 however, with respect to this insect that it is an
23 insect that is susceptible to BT?

24 A. Yes, most definitely.

25 Q. And that BT can be an effective agent

1 in controlling this type of insect?

2 A. Yes.

3 Q. Can we also agree, however, that the
4 past efficacy data to which I have drawn your attention
5 clearly demonstrates that chemicals can also be very
6 effective?

7 A. Yes.

8 Q. And indeed in the comparative
9 efficacy data that's available relating to the last
10 outbreak, it would suggest that the results achieved
11 with chemicals were superior to those achieved with BT?

12 A. In the manner that they were used in
13 1977, yes, that would be the conclusion. It is
14 important to note that -- if we go to the results from
15 1977, that the BT was -- there was I believe double
16 applications of BT at the rate, to use a little bit of
17 jargon, is 4 BIUs.

18 Q. Four or forty?

19 A. Excuse me, 4 BIUs per acre, or 10
20 BIUs per hectare; whereas if we were to conduct a spray
21 program this year or during the current epidemic, we
22 would probably use a rate roughly double of that, 20
23 BIUs per hectare.

24 Q. All right. Are you -- I am sorry.

25 A. So what I am saying is that the

1 results we obtained in the '77 operation may not be
2 indicative of the results we would attain in 1989 and
3 1990.

4 Q. If you used increased application
5 rates?

6 A. That's correct.

7 Q. And what did you say you would use?

8 A. 20.

9 Q. 20?

10 A. 20 BIUs.

11 Q. So if you increased the rate in some
12 instances fourfold, you would get -- obviously you
13 would anticipate better results with the use of BT?

14 A. No, I'm sorry, I have thrown out a
15 few different numbers here. Actually we would
16 essentially be doubling the rate, the 4 BIUs was for
17 acre which is equivalent to 10 BIUs per hectare.

18 Q. Sorry.

19 A. And my figure of 20 is also in metric
20 per hectare.

21 Q. All right. So if you doubled the
22 rate of BT used, you would expect to improve the
23 results over what we see in the 1977 and later efficacy
24 data?

25 A. That is correct.

1 Q. Right.

2 A. And it is also my understanding that
3 aerial spray programs that are being conducted this
4 year on private land by private applicators are using
5 the rate of 20 BIUs per hectare and obtaining adequate
6 results.

7 Q. Does the normal rate of BT -- does
8 the normal application rate of BT differ according to
9 insect type?

10 A. Yes, it does.

11 Q. All right. What is the normal rate,
12 for example, with spruce budworm?

13 A. The registered rate on the label is
14 20 to 30 BIUs per hectare per application. In some
15 years we have used 20 BIUs, in other years we have used
16 30 BIUs.

17 Q. And in some years you have used 40;
18 haven't you?

19 A. Not for spruce budworm, no.

20 Q. Okay, we will come back to that then.

21 A. Okay.

22 Q. A BIU is what?

23 A. It stands for billion international
24 units which is a biological measure of bacteria. With
25 chemical insecticides and herbicides you usually

1 measure it in grams of active ingredient. It is
2 difficult to weigh bacteria, so it is measured in a
3 different format.

4 Q. All right. According to the label
5 provisions then, the normal rate is 20 or 30 BIUs?

6 A. Yes.

7 Q. And that's for spruce budworm?

8 A. That's correct.

9 Q. All right. And what is it for the
10 insect that we have just been discussing, tent
11 caterpillar?

12 A. I believe it is the same rate, 20 to
13 30 BIUs.

14 Q. All right.

15 A. I stand corrected, Mr. Nicholson who
16 has -- his company has been operating its brand for
17 forest tent caterpillar in southern Ontario tells me
18 that the label rate is 10 to 20 BIUs.

19 Q. I was just going to ask you if you
20 were using under the recommended rate back in 1977 and
21 I gather that was not the case from what you were just
22 saying?

23 A. No.

24 Q. All right. Can we turn then to the
25 next efficacy data reports contained in this exhibit,

1 they pertain to an insect known as the oak leaf
2 shredder; am I right?

3 A. That's correct.

4 Q. And beginning at page 20 we have the
5 1977 efficacy results. Perhaps just for the assistance
6 of the Board, could I ask you to go to page 21 first,
7 please?

8 A. Yes.

9 Q. All right. And I direct your
10 attention to the introduction paragraph which provides:

11 "The oak leaf shredder has a been
12 persistent and widespread pest of red
13 oak in Ontario in recent years.
14 Defoliation by this insect is probably a
15 major predisposing factor in oak
16 decline, dieback and mortality. Serious
17 tree deterioration and mortality has
18 occurred in many areas in Ontario with a
19 history of oak leaf shredder
20 infestations."

21 Stopping there, that's a description of
22 the nature of the pest?

23 A. That is correct.

24 Q. All right. Am I correct that
25 chemical insecticides were used in 1977 to treat this

1 pest?

2 A. Yes.

3 Q. Can you tell us how often -- is this
4 a cyclical reoccurring insect in terms of infestations?

5 A. Yes, usually -- I have had no
6 personal experience in dealing with this insect;
7 however, my understanding of the biology of it is that
8 it crops up in a given site or a given area. It tends
9 not to spread, epidemics do not become widespread in
10 the same manner that spruce budworm does, but there is
11 a cyclical nature to it, it does come back for a few
12 repeated years.

13 Q. Can you tell, based on the historical
14 data, what the time interval is, how often one expects
15 the cycle?

16 A. As we have indicated, we are looking
17 at 1977 here, I believe there was spray programs in '77
18 to 1980. There was also a program in '83 and there was
19 indication, I believe in the last couple of years, that
20 in some sites populations were building up again. I
21 would --

22 Q. Sorry.

23 A. I would liken it more to jack pine
24 budworm where it is very sporadic and there is no set
25 cycle.

1 Q. All right, thank you. That is the
2 answer to my question. Dealing with the 1977 results
3 at pages 24 and 25, they are set out there in tabular
4 form; are they not?

5 A. Yes, they are.

6 Q. Would you agree with me that looking
7 at the percentage defoliation columns that once -- with
8 respect to this insect, it appears that with one
9 exception - and I will come to that in a moment - very
10 good results were achieved with the use of chemicals?

11 A. Yes.

12 Q. And I mean by that 'very effective',
13 they protected the tree population from this insect
14 very well?

15 A. Yes. When you compare it to the
16 corresponding untreated area, yes.

17 Q. All right. And we see that; do we
18 not -- just for example, in the defoliation percentage
19 column. Let's take the first one, the first treatment
20 reported there was 4 per cent defoliation experienced
21 on the treated block and 42 per cent on the untreated
22 block. So there was an improvement, if you will, of 38
23 per cent protection as a result of treating with
24 chemical?

25 A. That's correct.

1 Q. All right. Now, I said there was one
2 exception to that suggestion, and would you agree that
3 appears to be the second treatment result reported?

4 A. Yes.

5 Q. And that shows a defoliation
6 percentage of 43 per cent compared to an untreated area
7 defoliation percentage of 62 per cent?

8 A. That's correct.

9 Q. There was still an improvement but it
10 is not as marked as it was on the other plots?

11 A. Yes, that's correct. If we look at
12 the left-hand column there, of that cuplet, it
13 indicates that that application of orthene was made a
14 little bit late perhaps, a few days after the earlier
15 one. It would indicate to me that there was
16 considerable defoliation prior to the treatment.

17 Q. And in fact that's what the report
18 suggests; does it not, in the text?

19 A. I believe in the text they do refer
20 to that, yes, on page 22.

21 Q. All right. And that would explain
22 why the defoliation protection achieved on that
23 treatment plot and indeed on a similar one on the next
24 page, page 25, was not as high as achieved on other
25 plots?

1 A. That's correct.

2 Q. All right. Would you agree with me,
3 Mr. Churcher, that generally looking at these results
4 they are very good indeed?

5 A. Yes, generally speaking I would say
6 that they are good results.

7 Q. All right. Could we move then very
8 quickly to the 1978 results starting at page 27.
9 Again, dealing with the oak leaf shredder, am I correct
10 that chemicals were again used?

11 A. Yes, that's my understanding.

12 Q. All right. The discussion -- when I
13 say chemicals were used, I mean chemicals alone were
14 used?

15 A. Yes.

16 Q. Right. The same thing was true in
17 1977?

18 A. That's correct.

19 Q. And if we look at page 30 do we see a
20 discussion in text form of the results achieved?

21 A. Yes.

22 Q. All right. And could I direct your
23 attention please to the second full paragraph beginning
24 with the words: "These results..."

25 A. Yes.

1 Q. Full paragraph.

2 A. Yes.

3 Q. It reads; does it not:

4 "These results in 1978 in terms of spray
5 deposit, larval mortality and foliage
6 protection strongly substantiate those
7 recorded for Awienda in 1977. Results in
8 1978 as in 1977 appear surprisingly
9 good, particularly in view of what seems
10 to be rather low spray deposits measured
11 for all treatments."

12 Would you agree with me that the authors
13 are reporting here that the results were, first, indeed
14 good and having regard to the fact that low spray
15 deposits were used, surprisingly good?

16 A. Yes.

17 Q. All right. And if we look at the
18 tabular results at pages 34 and 35 and we look first at
19 the percentage defoliation column, would you agree with
20 me that these results demonstrate that excellent
21 protection against defoliation was achieved with the
22 use of chemicals for this insect?

23 A. I would probably characterize them as
24 good, I'm not sure if I would go -- or very good. I'm
25 not sure if I would go so far as excellent.

1 Q. All right. Well, when you look at
2 them -- all right, very good, I will take that.

3 When you look at them in comparison to
4 the population reduction achieved, we have got
5 reductions in insect population of 90 per cent, 95 per
6 cent, 80 per cent; on the next page, 82, 94 per cent.
7 Those results are -- you can't do a whole lot better
8 short of getting a hundred. They are very good; aren't
9 they?

10 A. Yes.

11 Q. All right.

12 A. And it is probably appropriate to add
13 at this point that my understanding of the oak leaf
14 shredder operations, one of the primary objectives
15 there was in population reduction, not so much in per
16 cent defoliation, although that was an important factor
17 as well.

18 As you noted earlier, oak leaf shredder
19 was a predisposing factor possibly to decline, but
20 because of the nature of the beast it tends to be very
21 isolated, it comes back to infest the same areas and I
22 believe in some subsequent reports it indicates that
23 good control in one year with oak leaf shredder has a
24 carry-over effect for the following year, if not
25 possibly two years.

1 So in this case they were trying to get
2 as high a larval mortality as possible and, as you
3 indicate, results such as 85, 90, 95 per cent larval
4 mortality are indeed very good, if not excellent
5 results.

6 Q. Thank you.

7 MS. CRONK: Mr. Chairman, I am clearly
8 wrong about my time estimate and I regret that. I can
9 tell you that my intention is, as quickly as can
10 rationally be done, to move through the rest of the
11 efficacy data. I won't be able to do that in anything
12 like five minutes. Would you like to take a break now?

13 THE CHAIRMAN: Yes, I think that would be
14 appropriate, Ms. Cronk, at this time.

15 MS. CRONK: Thank you.

16 THE CHAIRMAN: We will take 20 minutes.
17 Thank you.

18 ---Recess taken at 10:35 a.m.

19 ---On resuming at 11:05 a.m.

20 THE CHAIRMAN: Thank you. Be seated.

21 MR. CHURCHER: Before we continue, Ms.
22 Cronk, you asked me during the break to check your
23 calculations on the two-page table in response to
24 Interrogatory 8, and your numbers are correct.

25 MS. CRONK: Q. Thank you. Just before

1 we broke we had completed looking at the 1978 efficacy
2 data with respect to the use of chemicals to combat oak
3 leaf shredder.

4 Could I ask you to go down to page 39 of
5 the 1979 efficacy data. And am I correct that
6 chemicals again were used exclusively?

7 MR. CHURCHER: A. Yes, that's correct.

8 Q. And if we go to page 41 at the bottom
9 of the page, do we find there the text description of
10 the results, the last paragraph, page 41?

11 A. Yes, that's correct.

12 Q. All right. And it reads:

13 "In any event the results for 1979,
14 particularly Awienda and Wildman were 94
15 to 95 per cent larval mortality and good
16 foliage protection substantiate the
17 recommendation last year that orthene
18 applied at the proper time and at a
19 dosage of..."

20 At a particular dosage and at a particular application
21 rate:

22 "...through boom and nozzles
23 dispersal by small fixed wing aircraft is
24 highly effective treatment for minimizing
25 defoliation by this insect."

1 Orthene is a chemical; is it not, Mr.
2 Churcher?

3 A. That is correct.

4 Q. And would you agree that the data
5 reported in this efficacy report substantiates the
6 conclusion suggested by the authors in the paragraph I
7 just read to you?

8 A. Yes, they do.

9 Q. They demonstrate excellent
10 defoliation protection results; do they not?

11 A. That is correct.

12 Q. And as well I suggest excellent
13 population reduction results?

14 A. Yes, I would characterize them that
15 way. Also on page 42, I might add --

16 Q. Page?

17 A. 42.

18 Q. Yes?

19 A. The last sentence of the first full
20 paragraph there is the reference that I made just prior
21 to the break that:

22 "The population data support the
23 conclusion that effectively sprayed areas
24 are not immediately reinfested by
25 immigrants from surrounding infested

1 areas. It is possible to achieve
2 protection for at least year and possibly
3 two years after treatment with good
4 results."

5 Q. Thank you. And the 1980 results
6 begin at page 50. Again, am I correct in suggesting
7 that, again, chemicals were used exclusively? I am
8 sorry, I said page 50, it's page 54 that they begin.

9 MR. MARTEL: Could I ask a question
10 before you move off that?

11 MS. CRONK: Yes, Mr. Martel.

12 MR. MARTIN: That last sentence that was
13 read by Mr. Churcher, is that -- the reverse of that,
14 does it imply that if you don't treat it you are going
15 to have these every two years?

16 MR. CHURCHER: No. I believe the
17 conclusion would be that if you didn't treat, that they
18 would probably reinfest the following year.

19 MR. MARTEL: That is the point I'm making
20 though, or trying to make in the form of a question.
21 If you don't continually treat, you are going to have
22 them back?

23 MR. CHURCHER: My understanding of the
24 biology of this insect is, yes, not forever and ever
25 but for the period of time until some form of natural

1 control can bring about the collapse of that particular
2 specific population.

3 MR. MARTEL: All right, thanks.

4 MS. CRONK: Q. Do you mean then that
5 continual retreatment is necessary during the length of
6 the epidemic, the particular infestation, or do you
7 mean in perpetuity unless nature causes some natural
8 collapse of infestation?

9 Is there an epidemic period associated
10 with this insect during which you have to continually
11 retreat?

12 MR. CHURCHER: A. Yes, there is.

13 Q. All right.

14 A. Although the epidemic is not in the
15 sense that we would use it for spruce budworm, like, we
16 are not talking about millions of hectares, it's in a
17 reasonably specific locale.

18 Q. All right. And that, you told me
19 earlier today, was one of the criteria that is looked
20 to for determining when outbreak control should be
21 undertaken; is it not?

22 A. That is correct, yes.

23 Q. This then would be an insect -- would
24 I be correct in suggesting, Mr. Churcher, that this
25 would be an insect candidate for outbreak control

1 measures?

2 A. Yes.

3 Q. And going then to the 1980 results
4 beginning on page 54, am I correct in suggesting that
5 chemicals were used exclusively?

6 A. That's correct.

7 Q. And the results at page 56 as
8 described in the text suggest that the use of those
9 chemicals, in particular orthene at that time subject
10 to propose rates and proper dosages is a very effective
11 treatment, I'm quoting:

12 "Very effective treatment for minimizing
13 defoliation by this insect."

14 A. Yes. The words are highly effective,
15 yes.

16 Q. Sorry, page 56?

17 A. Yes.

18 Q. Under results.

19 A. Yes.

20 Q. Last sentence?

21 A. Yes.

22 Q. Highly effective treatment?

23 A. That's correct.

24 Q. Did you just tell me something
25 different or did I mishear you?

1 A. I heard you to say very effective.

2 Q. All right.

3 A. I heard what you were saying and said
4 highly effective.

5 Q. Sorry. Thank you.

6 A. Perhaps my hearing is going.

7 Q. No, I'm sorry, I didn't mean -- the
8 tabular result are at pages 57 to 58. Do you agree
9 that they substantiate the conclusions and the
10 suggestions drawn by the authors; namely, of highly
11 effective defoliation achievement?

12 A. Yes, by and large they do. The one
13 exception is the block or the plot at Uxbridge, the
14 final one there, did not have particularly good
15 population reduction and not particularly good foliage
16 protection compared to the unsprayed treatment.

17 Q. All right. Although there was still
18 a reduction of some 17 per cent or 16.5 per cent?

19 A. Yes. Yes, that is true.

20 Q. And in respect of the population
21 reduction figures, would you agree with me that several
22 of them are very good indeed, we have got 98 and 100
23 per cent in two locations?

24 A. Yes. And even the first one 83 per
25 cent I would say was good.

1 Q. All right. And am I correct that in
2 1981 and 1982 the populations of this insect were low
3 and, accordingly, no spraying program was undertaken?

4 A. Yes, that is my understanding.

5 Q. All right.

6 MS. CRONK: Can I have just one moment,
7 please.

8 Q. Just dealing with the results in
9 Uxbridge, could I ask you to go to page 56 of the
10 report, please.

11 Under the results paragraph, am I correct
12 that the report indicates that the reasons for the
13 poorer results comparatively speaking at Uxbridge were
14 not clear, but that the spraying in the other districts
15 was done by a different contractor and aircraft than
16 the operator in the Uxbridge District?

17 MR. CHURCHER: A. Yes, yes.

18 Q. All right. Would you agree with me
19 that that is a suggestion that it may have something to
20 do with the manner in which the spraying procedures
21 were carried out?

22 A. Yes, that would be a likely
23 explanation for the different results.

24 Q. All right. And the 1983 results
25 begin at page 61 and contrary to all the other results

1 that we have looked at so far, am I correct that in
2 this year both BT and chemicals were used?

3 A. Yes, that is what the report
4 indicates.

5 Q. And in fact if we look at page 62, am
6 I correct that this was the first time that BT had been
7 used against the oak leaf shredder in Ontario?

8 A. Yes, that is my understanding.

9 Q. All right. And if we again, on page
10 62, look at the description of the results, am I
11 correct in suggesting that the document confirms that
12 the chemicals were: "very effective" in reducing oak
13 leaf shredder populations and thereby limiting
14 defoliation? Middle of the paragraph, bottom of page
15 62.

16 A. Yes, that's correct. I have found
17 that.

18 Q. And if we look at the tabular results
19 at pages -- at page 65 -- excuse me, could I ask you to
20 go to that page, please?

21 A. Yes.

22 Q. Looking at the first column on the
23 left dealing with treatment, there are four compounds
24 mentioned. Are the first three chemicals?

25 A. Yes, they are.

1 Q. That being orthene and sevin?

2 A. Yes.

3 Q. That's correct.

4 Q. The fourth is BT?

5 A. That's right, it's a formulation of
6 BT, yes.

7 Q. All right. So that if we wanted to
8 compare the biological efficacy results with the
9 chemical insecticide efficacy results, we should
10 compare the results for the fourth compound mentioned
11 with the first three?

12 A. Yes.

13 Q. All right. And in that respect,
14 looking at the chemical results for population
15 reduction, the achievement was respectively 99 per
16 cent, 97 per cent, 98 per cent; am I right?

17 A. That's correct.

18 Q. Very high insect population reduction
19 results?

20 A. Yes, excellent results.

21 Q. Comparatively speaking BT was 49 per
22 cent less effective?

23 A. Yes.

24 Q. And looking at the defoliation
25 percentages, again good results with respect to the

1 chemicals?

2 A. Yes.

3 Q. And adequate results I suggest, but
4 not as good with BT; would you agree?

5 A. Yes, not as good.

6 Q. Only in the case of BT a 10 per cent
7 reduction in defoliation?

8 A. Yes.

9 Q. Compared variously to other -- 17 per
10 cent to over 20 per cent reduction--

11 A. Yes.

12 Q. --in the use every chemicals?

13 A. That is correct. The reason for that
14 is also given on page 62 of the text.

15 Q. The reason for what?

16 A. For the poor results obtained from
17 the use of BT when compared to the results of chemical.

18 Q. All right. Page 62?

19 A. Yes. Again in that bottom paragraph
20 titled results, the second sentence -- third sentence
21 begins -- third sentence begins:

22 "Just as spraying was completed a light
23 rain began to fall and continued for the
24 of the day. As well temperatures
25 decreased considerably and remained cool

1 for two or three days following spray."

2 And if we move down to the last sentence
3 of that paragraph:

4 "Larval populations were substantially
5 reduced in the areas treated with dipel
6 and this resulted in some form of
7 protection. In this area likely that the
8 cool, wet weather following the spray
9 reduced the effectiveness of this
10 treatment."

11 Q. All right. That raises a number of
12 issues. First it confirms; does it not, the suggestion
13 that you earlier made to the Board that in respect
14 particularly of BT one has to be concerned about
15 rainfall?

16 A. That is correct.

17 Q. And that is because, as I understand
18 it, it washes the BT away and it isn't available to be
19 ingested by the insects?

20 A. yes.

21 Q. Conversely, when chemicals are used
22 or at least comparatively when chemicals are used, you
23 still have to be concerned about rainwash; is that
24 correct?

25 A. Yes, that's correct.

1 Q. But because chemicals have a longer
2 persistence compared to BT, the likelihood is some of
3 them will remain around a little longer despite the
4 rain; is that correct?

5 A. That's correct or -- and also in the
6 case that a product or -- something known as a sticker
7 may also be added -- or may be incorporated in the
8 insecticide -- chemical insecticide formulation to help
9 stick the product to the leaves or the foliage so it
10 does not wash off in the event of rain.

11 Q. All right. That illustrates; does it
12 not then, one of the advantages of using chemicals in
13 the sense that, although one must remain concerned
14 about climatic conditions, there is a greater level of
15 possibility for success in those terms than there is
16 with BT?

17 A. Yes, precisely.

18 Q. Orthene as a chemical is actually
19 absorbed; is it not, into the foliage, it's a systemic
20 insecticide?

21 A. It may well be. I have had no direct
22 experience dealing with that. I defer to my colleague
23 Mr. Nicholson.

24 Q. Mr. Nicholson, on that question, am I
25 correct that it is actually absorbed into the foliage?

1 MR. NICHOLSON: A. It's mildly systemic.

2 Q. Thank you. And that is what that
3 means?

4 A. Yes.

5 Q. Absorbed into the foliage?

6 A. Yes.

7 Q. Thank you. All right. Am I also
8 correct, Mr. Churcher, in examining these comparative
9 results with the use of BT that in fact the application
10 rate was 40 BIUs per hectare; that is higher than the
11 normal rate?

12 MR. CHURCHER: A. I'm not sure what the
13 label rates for dipel-88 would have been for oak leaf
14 shredder.

15 Q. All right. In light of the
16 discussion we had earlier though I thought you had
17 indicated that the normal rate was 20 to 30; you are
18 suggesting for this insect it may be different?

19 A. That's correct.

20 Q. All right. Could you make inquiries
21 in that regard, if you can, and inform me as to whether
22 that rate was higher than the normal rate?

23 MR. NICHOLSON: A. I may interject on
24 that, having been on site.

25 Q. Thank you.

1 A. That was a misapplication and in fact
2 the approach was or the effort was for 30 BIUs but due
3 to navigational errors, the pilot applied it at a
4 higher rate.

5 Q. All right. Thank you very much.

6 A. And we just assessed the results
7 accordingly.

8 Q. Thank you very much. It follows
9 then; does it not, that however caused, a higher rate
10 having been used, even with the higher rate, the BT
11 results were not as good as those achieved at either
12 parameter when compared to the chemical results?

13 MR. CHURCHER: A. That is correct.

14 Q. Thank you. Am I correct that there
15 has been no outbreak, if I can use that term, with this
16 insect since 1983, at least there has been no
17 treatment -- there has been no outbreak sufficient to
18 warrant treatment since 1983?

19 A. That is a very good way of putting
20 it, yes.

21 Q. All right. Based on the experience
22 in the years 1977 to 1983, can we agree that it's clear
23 on this efficacy data that BT, although effective
24 against the insect, is not as effective as chemicals
25 based on this data?

1 A. Based on this data, yes.

2 Q. All right. And I think you told me
3 earlier -- confirmed earlier that oak leaf shredder is
4 a major insect pest in the area of the undertaking?

5 A. It can be, yes, although I believe
6 all of the areas that were treated in the years '77 to
7 '80, as well as 1983, are actually outside of the area
8 of the undertaking.

9 Q. All right, thank you.

10 MS. CRONK: Excuse me a moment.

11 Q. No testing having been done, no
12 treatments having been done since 1983, am I correct
13 that the most recent efficacy data for the application
14 of chemicals and BT against this insect is that which
15 we have just reviewed?

16 MR. CHURCHER: A. To my knowledge, yes.

17 Q. Thank you. Could we turn then to
18 spruce budworm?

19 A. Before we do leave oak leaf shredder,
20 one final point I would like to make is that my
21 understanding of the point of incorporating BT in the
22 1983 program was almost an operational trial, if you
23 will, just to see whether or not BT would be effective
24 against oak leaf shredder: Did it kill oak leaf
25 shredder?

1 Q. And it appears that it does?

2 A. It appears that it does.

3 Q. Thank you. Would you agree with me
4 that in the current climate, if I can put it that way,
5 were an infestation of oak leaf shredder in the area of
6 the undertaking to be such as to warrant treatment, the
7 treatment would have to be, in the current
8 circumstances, BT and not chemicals?

9 A. As a professional entomologist my
10 professional recommendation would be that if we were
11 faced with an oak leaf shredder infestation warranting
12 treatment, that if a chemical insecticide was available
13 for use that we would use that by and large over most
14 of the area, but I would also recommend or suggest that
15 a portion of the spray area be treated with BT, much as
16 was done in 1983, to test its viability.

17 Since 1983 we have been using new and
18 improved formulizations of BT which may give new and
19 improved or better results.

20 Q. And if the same results were to
21 obtain with respect to a recommendation of that kind as
22 obtained in 1986, chemicals would not be used; isn't
23 that so?

24 A. Could you repeat the question? I
25 think I got it, but clarify...

1 Q. If the same result applied following
2 a recommendation of that kind with respect to oak leaf
3 shredder as applied in 1986 with respect to proposed
4 programs, you wouldn't be able to using chemical?

5 A. The result you are referring to is
6 the decision by the Minister to use BT.

7 Q. Exactly?

8 A. Yes, then we would not use chemical.

9 Q. You wouldn't be able to? It would
10 have the same effect, you wouldn't be able to?

11 A. That's correct.

12 Q. Thank you. Could we move then to
13 spruce budworm. Again a great number of efficacy data
14 reports were produced with respect to spruce budworm.
15 We have provided those particular to the years 1985 and
16 following.

17 MS. CRONK: And we discovered last
18 evening, Mr. Chairman, that through inadvertence the
19 efficacy data for 1983 and '84, the before side, was
20 not included in the package.

21 I provided Mr. Churcher earlier this
22 morning with a copy of both documents and he told me,
23 in any event, he knew about them and I would like to
24 now file them for you.

25 THE CHAIRMAN: Okay. Do you want them to

1 go in as part of this same exhibit?

2 MS. CRONK: I have no preference in that
3 regard, whatever is more convenient for the Board, but
4 I do note that the document that has been filed with
5 you has been paginated, these won't be, if that matters
6 to you, perhaps they should be...

7 THE CHAIRMAN: All right. Let's give it
8 a new exhibit then. That will be Exhibit No. --

9 MS. CRONK: The 1983 results will be..?

10 THE CHAIRMAN: Exhibit No. 660.

11 MS. CRONK: 660. And '84, 661?

12 THE CHAIRMAN: That's correct.

13 ---EXHIBIT NO. 660: 1983 efficacy data results.

14 ---EXHIBIT NO. 661: 1984 efficacy data results.

15 MR. CHURCHER: Ms. Cronk, do you have an
16 additional copy of the '83 and '84 results?

17 MS. CRONK: (handed)

18 MR. CHURCHER: Thank you.

19 MS. CRONK: Q. Spruce budworm. When we
20 looked at this earlier, Mr. Churcher, we established
21 that the outbreak, the most recent outbreak of spruce
22 budworm in this province occurred in the late 1960s,
23 early 1970s?

24 A. Yes, that is when it began.

25 Q. And am I correct that prior to 1985,

1 both chemical and biological insecticides were used for
2 its treatment?

3 A. Yes, that's correct.

4 Q. And that from 1984 onwards only
5 biological; that is, BT insecticides were used?

6 A. 1985 onwards, yes.

7 Q. Sorry, 1985 onwards?

8 A. Yes.

9 Q. And starting with the 1985 results
10 which begin at page 68, so we will take a look at 1985
11 forward first, if we could.

12 Can we go first to page 71, and at
13 that -- and that table sets out; does it not, the area
14 of moderate to severe defoliation in 1985 compared to
15 1983-1984?

16 A. That's correct.

17 Q. And would you agree with me the total
18 area of defoliation being in excess of 12-million
19 hectares, that the extent of the problem in 1985 was
20 indeed very severe?

21 A. Yes.

22 Q. And the tabular results for the BT
23 spraying efforts are set out at pages 77 and 78. Am I
24 right and -- sorry, and at page 82. Perhaps if you
25 could go to page 77, first.

1 A. Very well.

2 Q. All right. And looking first at the
3 percentage -- perhaps I could back up. Am I correct
4 that in your evidence package, the spruce budworm
5 efficacy data that's been provided pertains to the 1988
6 spray year, that you have included that as part of your
7 evidence package?

8 A. That's correct.

9 Q. All right. Then looking at the 1985
10 results, defoliation first. Page 77 defoliation
11 results are reported for balsam fir and white spruce;
12 am I correct?

13 A. That is correct.

14 Q. And the way we know that is to look
15 at the tree species column, which is the second column
16 from the left and obviously where it says bF, those are
17 balsam fir results followed by white spruce results?

18 A. That's correct.

19 Q. And in each case -- let's just take
20 the first entry for balsam fir. Am I correct that the
21 first result reported is for the treated plot of balsam
22 fir and the second result reported is for the check
23 plot; that is, the untreated plot for balsam fir?

24 A. That is correct.

25 Q. And so on throughout the results

1 depending on the species?

2 A. Yes.

3 Q. All right. Would you agree with me
4 looking at the percentage defoliation results, that in
5 one case for white spruce the results were not what one
6 would have hoped, there was 61 per cent defoliation
7 and, as well, the defoliation for balsam fir in at
8 least two plots was quite high, 58 and 57 per cent?

9 A. Yes. You are looking at Nagagamisis
10 Provincial Park and Chelsea Township, I presume?

11 Q. Yes. 58 per cent for balsam fir?

12 A. Yes.

13 Q. 61 per cent for white spruce?

14 A. Yes.

15 Q. And 57 per cent for balsam fir?

16 A. Yes.

17 Q. All right. Now, am I correct that
18 the complete data set for this year's spraying effort
19 is found at page 77, 78 and over at page 82?

20 A. Yes, that's correct.

21 Q. All right. And if we could go to
22 page 82, please. All of the results -- sorry, could
23 you look at the results reported in the bottom of
24 that -- at the bottom part of that table.

25 For four different plots, would you agree

1 with me that the defoliation which resulted after
2 spraying was still quite high for both balsam fir and
3 white spruce; you have 64 per cent, 59 per cent, 72 per
4 cent, and 63 per cent?

5 A. Yes, there was -- significant
6 defoliation occurred in those treated blocks.

7 Q. All right. And there appear to have
8 been different application rates used throughout this
9 spray program for BT. In some instances the rate was
10 20 BIUs and that applies to the results that we have
11 just looked at, the last four results, defoliation
12 results; correct?

13 A. Yes, that's correct.

14 Q. In other instances a higher rate, the
15 30 BIUs were used and, in those instances, would you
16 agree that the defoliation protection achieved was
17 better where the higher rate of BT was used?

18 You got better results if you used more?

19 A. There was lower defoliation in the
20 treated blocks, however, there were also lower
21 populations in the treated blocks when the higher rate
22 was used.

23 Q. All right.

24 A. And the corresponding defol -- or the
25 defoliation in the corresponding untreated blocks was

1 also lower.

2 Q. All right.

3 A. We are not just comparing 30 BIUs
4 versus 20 BIUs is my point.

5 Q. I take your point. Thank you very
6 much, Mr. Churcher.

7 Now, Mr. Churcher, you told me earlier
8 this morning that in the Province of New Brunswick a
9 general standard for assessing the adequacy of
10 defoliation protection is 50 per cent for white spruce
11 and you said 60 per cent, meaning the objective is to
12 achieve 60 per cent protection--

13 A. That's correct.

14 Q. --with respect to balsam fir; is that
15 correct?

16 A. That's correct.

17 Q. All right. You have also told me
18 that in your view, and it is your evidence, that
19 standards of that kind do not apply in Ontario with
20 respect to white spruce and balsam fir for the
21 treatment of spruce budworm; am I right?

22 A. Ontario has no such standards that's
23 correct.

24 Q. All right. I'm going to put to you a
25 number of calculations, Mr. Churcher, and I don't

1 expect you to confirm them now, but I would ask you to
2 undertake to do so, if you would.

3 A. Okay.

4 Q. Dealing with the 1985 results, had a
5 standard of 50 per cent for defoliation achievement
6 been used with respect to white spruce and a standard
7 of 60 per cent protection for balsam fir, I'm going to
8 suggest to you that in 11 out of the 18 plots tested,
9 those standards would not have been met with the use of
10 BT.

11 Would you undertake to check that
12 calculation, please?

13 A. Certainly.

14 Q. Thank you. Could we move then to the
15 1986 results.

16 A. Before we do, if I may, I would like
17 to refer back to pages -- the test on pages 75..

18 Q. 75.

19 A. Yes, which deals with results from
20 Hearst District.

21 Q. Yes.

22 A. At the bottom of the page there is a
23 paragraph captioned Hearst District: The 1985 Spruce
24 Budworm, et cetera, et cetera.

25 Q. Yes?

1 A. About two thirds of the way or half
2 the way through the page there is a sentence that
3 begins:

4 "In terms of larval and host
5 development...."

6 Q. Yes?

7 A. "...most blocks were ready to be
8 treated a week to ten days before this
9 (i.e. before the time that they were
10 actually sprayed)--"

11 I lost myself here:

12 "The weather conditions (i.e. wind and
13 rain) confined spray aircraft to the
14 ground. This delay in treatment
15 undoubtedly reduced the effectiveness of
16 the protection program. Results of the
17 high volume commercial spray programs are
18 presented."

19 And on page 79 we are now talking about
20 the operation that was in Thunder Bay District in that
21 year. The last sentence in that top paragraph, the
22 sentence begins:

23 "However, as in the Hearst District
24 program weather and technical problems
25 delayed the start of operations and

1 interrupted the program once it had
2 started."

3 Q. Okay?

4 A. And the final sentence in the second
5 paragraph:

6 "In some areas, considerable defoliation
7 had occurred prior to treatment and
8 consequently the results of this program
9 are generally poor in terms of foliage
10 protection."

11 Q. Thank you.

12 A. And an explanation as to why we would
13 obtained the results we did.

14 Q. Those factors would certainly bear on
15 the results. That is your point?

16 A. Yes.

17 Q. Right. And looking, for example, at
18 the Thunder Bay District results on page 82 that we
19 looked at a moment ago, where all of the defoliation
20 percentages you have agreed are quite high, the
21 suggestion is that the delay in the start of operations
22 and program interruptions, implicitly the suggestion
23 is, may have affected the success of the program?

24 A. Yes, much of the defoliation that we
25 see reported probably or may very well have occurred

1 prior to the treatment of the block.

2 Q. All right, thank you.

3 Q. And dealing with the 1986 results
4 which begin at page 85, am I correct that in this spray
5 program program single and double applications of BT
6 were used?

7 A. Yes, that's correct.

8 Q. And, for the assistance of the Board,
9 am I also correct that in 1986 the infestation was
10 declining, it had dropped from 12.3-million in rounded
11 numbers to 8.8-million?

12 A. Yes, that's correct.

13 Q. 8.8-million still being, I suggest,
14 quite a serious problem but there was a drop from the
15 prior year?

16 A. Yes.

17 Q. And if we look at page 90, am I
18 correct that the suggested -- that the results, as
19 described in the text, are suggested by the authors to
20 have been "quite variable"?

21 A. Yes, that's correct.

22 Q. And they also suggest that technical
23 problems leading to delays in the program may - that's
24 their word - may have accounted for some of the poorer
25 results?

1 A. Yes, as well as the rapid and uniform
2 development of budworm larvae. The beginning of that
3 sentence as well:

4 "There was a number of factors affecting
5 results in 1986."

6 Q. Where were you reading from, Mr.
7 Churcher?

8 A. Just prior -- the area that you
9 quoted, just the beginning of that sentence.

10 Q. I was quoting from my notes, so what
11 page are you on?

12 A. Okay, page 90.

13 Q. Thank you.

14 A. The final paragraph.

15 Q. All right. So that there is a
16 suggestion that technical delays in the program and the
17 state of development of the larvae itself may have
18 contributed?

19 A. Yes, there was an early heat wave
20 that year which made the development of the insects and
21 the foliage much more rapid or much earlier than we
22 would have normally expected.

23 Many of the aircraft that we had
24 contracted to spray spruce budworm were still, in
25 southern Ontario, spraying gypsy moth and they were

1 unable to relocate at the optimum time to start
2 treating spruce budworm.

3 So much in '85 the program was delayed
4 due to uncontrollable factors so that there was
5 considerable defoliation prior to us actually spraying.

6 Q. All right. Would you agree with me,
7 Mr. Churcher, that in any given year for a spray
8 program using biological insecticides there are a
9 number of uncontrollable factors which may or may not,
10 in any given year, influence the results of the
11 program?

12 A. Yes, that's correct.

13 Q. That's a constant?

14 A. Yes, it is.

15 Q. And it applies regardless of insect
16 type, regardless of locale?

17 A. Yes.

18 MR. MARTEL: Would that also occur
19 because you have to get the insects at roughly the same
20 time that they are going to be eating well?

21 If you couldn't have received airplanes
22 up here in order to use chemicals, would your results
23 have been the same, in other words, because the
24 equipment was getting here late and consequently the
25 time for them to feast was somewhat past by the time

1 chemicals might have been applied, would the results
2 have been similar?

3 MR. CHURCHER: I would imagine that the
4 results obtained would have been very similar, yes, if
5 we had used chemical. The delay was because we didn't
6 have aircraft. So when we did finally spray, it would
7 have made very little difference if we had sprayed
8 chemical or BT, all things being equal. For that
9 reason I would expect similar results.

10 MS. CRONK: Q. The only area of
11 difference in that respect, in terms of uncontrollable
12 factors, is the impact of inclement weather?

13 MR. CHURCHER: A. Precisely.

14 Q. All right. And I suppose the eating
15 habits of insects, if they are not hungry BT is not
16 going to work?

17 A. That's correct.

18 Q. Looking at pages 94 -- or starting at
19 page 94, and perhaps we could do this in a summary
20 fashion, Mr. Churcher, there are a number of pages of
21 data provided, pages 94 through 99?

22 A. Yes.

23 Q. Would you agree with me that the
24 results achieved for defoliation protection for both
25 balsam fir and white spruce are, in some instances,

1 satisfactory and quite adequate, but in other cases
2 there is very mixed results?

3 A. Yes, I would agree with that
4 statement. Specifically the results on pages 94 and 95
5 and 96, I would say are adequate and those are the
6 results of the spray programs that occurred in Hearst
7 District, Terrace Bay District, and Geraldton District
8 respectively.

9 And in those areas, as you noted, there
10 was a sharp decline in 1986 -- not a sharp, but there
11 was a decline in the total area infested in 1986 and it
12 was in these districts that decline occurred.

13 Q. What are you reading from, Mr.
14 Churcher; is that the efficacy data itself?

15 A. Yes, it is.

16 Q. Thank you.

17 A. Pages 94, 95 and 96.

18 Q. Thank you. And when looking at the
19 results on those pages, would you also agree with me
20 that better defoliation protection results were
21 achieved when a higher rate of BT was used, a higher
22 rate of application coupled with, I should add, a
23 double application?

24 A. My --

25 Q. Look at -- I'm sorry?

1 A. As far as I can tell from these
2 pages, all treatments were a single application of 20
3 BIUs.

4 Q. Could you look, please, at page 98?

5 A. Okay.

6 Q. I suggest, in comparison to the data
7 on page 97 which reflects a single application at 20
8 BIU, what we have on page 98 is multiple applications,
9 and if we look at page 99 it tells us at what rate of
10 application and it is clear that some of them were done
11 at 30 BIUs?

12 A. Yes. My apologies, you are right.

13 Q. It's all right. My point being that
14 if you reviewed this data the instances in which better
15 defoliation protection was achieved were circumstances
16 in which a double application of the insecticide was
17 used at the higher rate? If you would like to review
18 the data and provide me with your answer after lunch,
19 that's fine.

20 A. Yes, I will.

21 Q. Thank you. Could we move then to the
22 19 -- I am sorry, would you agree then that the data in
23 its entirety sunstantiates -- or does it substantiate
24 in your view the suggestion by the authors who prepared
25 the report that the results were indeed quite variable?

1 A. Oh yes, definitely.

2 Q. All right.

3 A. As a result, I might add, of those
4 variable results there was a committee set up in the
5 fall of 1986 to study the variable results that we
6 experienced in 1985 and also 1986 to determine exactly
7 why we were getting such variable results.

8 Q. What was that committee called?

9 A. Imaginatively enough it was called
10 the Spray Results Committee.

11 Q. That doesn't even help you with which
12 bug. Who was on it, not individuals, but nature of
13 positions?

14 A. It was struck specifically to look at
15 the variable results of spruce budworm.

16 Q. Sorry, my point was, was it an MNR
17 committee?

18 A. It was struck by MNR. The chairman
19 was MNR; however, there were also representatives from
20 Forestry Canada, the people that had done the surveys
21 and collected the results.

22 Q. Thank you.

23 A. So that they could explain from their
24 point of view how these results were obtained.

25 Q. Thank you. And if we move then to

1 the next results at page 101, the 1987 results. Again,
2 in an effort to do this in summary fashion, can we
3 agree that both single and double applications of BT
4 were used?

5 A. Yes, that's true.

6 Q. Overall the results reported are
7 adequate, I would suggest?

8 A. Yes.

9 Q. The tabular results in that regard -
10 I don't think you need go to them - are at page 109?

11 A. Yes.

12 Q. And some of those results are clearly
13 not what one would hope for, but in the main they are
14 adequate in terms of defoliation achieved?

15 A. Yes, I would characterize them that
16 way.

17 Q. All right. And could we then go to
18 the 1988 results which in part you discussed in your
19 evidence-in-chief and that begins at page 115?

20 A. Yes.

21 Q. Am I correct that in the 1988 spray
22 program a single application of BT was used?

23 A. That is my recollection, yes, in all
24 cases.

25 Q. And in 1988 there was as well a

1 continued decline in infestation?

2 A. Generally across the province, that
3 is true, yes, although--

4 Q. All right. I'm sorry.

5 A. --although there was still moderate
6 to severe defoliation. And in the specific areas that
7 we sprayed, there were still high populations.

8 Q. All right. Well, could we look at
9 page 118, please. And we saw these statistics in a
10 different context in an interrogatory response earlier
11 this morning. My point is, however, that in terms of
12 general trend, the infestation was on the downcline but
13 it was still a very specific problem because there was
14 over 5-million hectares defoliated?

15 A. That's correct.

16 Q. All right. And could we go to page
17 125, please, and look at the discussion of the results.
18 I direct your attention to the last paragraph at page
19 125, Mr. Churcher. Do you have that?

20 A. Yes, I do.

21 Q. All right. It reads:

22 "Overall this year's results are quite
23 variable ranging from good to poor.

24 However, it appears that the areas
25 sprayed the earliest, particularly Arrow

1 Lake and Bedivere Lake in Thunder Bay
2 District received better protection than
3 Sibley or the Nipigon District blocks
4 which were sprayed later. Even so,
5 several of the block 4 and Cochrane
6 Township blocks 8, 9 and 10 received
7 fairly good protection, particularly the
8 balsam fir."

9 Do you agree with that characterization
10 of the efficacy data?

11 A. Yes, I do.

12 Q. Then if we turn to the next page,
13 page 126, those are the results for each spray block
14 assessed in Thunder Bay District, northcentral region,
15 and that is the table that appears in your evidence
16 package; is that correct?

17 A. Yes.

18 Q. Or one of the tables?

19 A. Yes, I believe the entire report of
20 1988 is reproduced in my evidence package. I don't
21 recall the pages.

22 MR. FREIDIN: 209.

23 MR. CHURCHER: Thank you, Mr. Freidin.

24 MS. CRONK: Q. And the pages that begin
25 in the following pages, page 127 and following, am I

1 correct that these set out the individual data for each
2 plot in each district as sprayed?

3 A. Table 7 on pages 127 and 128 of this
4 evidence represent the individual plot-by-plot data.

5 Q. And --

6 A. For Thunder Bay District.

7 Q. Yes.

8 A. In other words, what has been
9 summarized in Table 6 on page 126.

10 Q. And if you keep moving through the
11 tables, Table 8 and following again, Table 9--

12 A. Right.

13 Q. --and so on, we have individual
14 results for each block sprayed?

15 A. Yes. Table 8 on page 129 and 130 is
16 a summary, again, on a block-by-block basis of the
17 areas sprayed in Nipigon District, and pages 131 and
18 onwards is that summary information broken down on a
19 plot-by-plot basis within each block.

20 Q. All right.

21 A. The summary tables show after Table 6
22 and Table 8.

23 MR. FREIDIN: Mr. Chairman, I was wrong,
24 the actual reports start on page 198 of the witness
25 statement.

1 THE CHAIRMAN: Thank you.

2 MR. FREIDIN: Page 209 is where the
3 tables start.

4 MS. CRONK: Q. Table -- I am sorry, just
5 to repeat that, Table 6 and 8 are the summary tables,
6 the rest are all the detailed data?

7 MR. CHURCHER: A. That is correct.

8 MS. CRONK: Could I have a moment,
9 please.

10 Q. What I would like you to do, Mr.
11 Churcher, if you would for me and provide me
12 subsequently with the information, is to go through the
13 data, not the summary charts, and tell me: Had a 50
14 per cent standard for defoliation protection on white
15 spruce been used and a 60 per cent defoliation
16 protection standard for balsam fir been used, how many
17 of the specific plot results would have failed in the
18 aggregate to meet that standard?

19 MR. CHURCHER: A. Yes.

20 Q. Or those standards?

21 A. This is for 1988?

22 Q. Yes.

23 A. On the plot-by-plot information?

24 Q. Yes. In other words, don't count
25 Tables 6 and 8.

1 A. Very well.

2 Q. And to be fair to you, I have done it
3 but I included the summary table, Table 8, so I am not
4 going to give you numbers because they are clearly
5 wrong.

6 A. Okay.

7 Q. In particular, with respect to the
8 results on a plot-by-plot basis for white spruce, I
9 would like you to look at the failures associated with
10 a 50 per cent standard for white spruce and to indicate
11 to me how much of the white spruce plots, how many in
12 terms of the total white spruce category, in fact, were
13 adequately protected using that standard?

14 A. Okay.

15 Q. All right.

16 MS. CRONK: And it may be, sir, that I
17 will have one or two questions, I hope very briefly,
18 following when that information is forthcoming.

19 THE CHAIRMAN: Very well.

20 MS. CRONK: Q. I am going to suggest to
21 you overall, Mr. Churcher, now because I don't think
22 you need to do those specific calculations to comment
23 or express an opinion on this--

24 MR. CHURCHER: A. Yes.

25 Q. --that these results substantiate the

1 evidence that you have already given to the Board that
2 white spruce is a very difficult species to effectively
3 protect against spruce budworm; do you agree?

4 A. It is certainly more difficult than
5 balsam fir, yes.

6 Q. All right. And these results
7 specifically bear that out; do they not?

8 A. Yes, they do.

9 Q. And indeed as we move through the
10 defoliation efficacy data it is apparent, I suggest,
11 that there was considerable -- although in some
12 instances white spruce was adequately protected, there
13 are a considerable number of instances where it does
14 not appear to have been adequately protected; would you
15 agree?

16 A. Yes.

17 Q. And in fact when we compare the white
18 spruce protection result data to the balsam fir
19 protection data, it is quite clear that better results
20 were achieved with balsam fir than with white spruce?

21 A. Yes.

22 Q. And further I suggest to you it is
23 quite clear that with respect to white spruce overall
24 one could say that adequate protection was not achieved
25 on enough of the white spruce plots?

1 A. That I would like to answer after I
2 have checked the numbers.

3 Q. That's fine. Can we go this far
4 together now, that -- well, you tell me: What, based
5 on your professional experience -- I'm sorry, based on
6 your experience would you not prefer a much better
7 protection result achievement on white spruce than is
8 reflected in the 1988 data?

9 A. On many of the plots, yes.

10 Q. All right. And I suggest the
11 majority?

12 A. That could be. I will, again, check
13 that over the lunch hour.

14 Q. All right, thank you. Could we go
15 now to Exhibit 650. I am sorry, that is the series of
16 interrogatory responses, and I would like to go to OFIA
17 Interrogatory No. 29.

18 MS. CRONK: It is Exhibit 650, sir, OFIA
19 Interrogatory No. 29. Do you need another copy, Mr.
20 Chairman?

21 THE CHAIRMAN: Well, I probably have it
22 here. Just a moment.

23 MS. CRONK: I have one right here, sir,
24 if it will assist.

25 THE CHAIRMAN: It would probably be

1 quicker.

2 MS. CRONK: (handed)

3 THE CHAIRMAN: Thanks.

4 MS. CRONK: Q. Mr. Churcher, am I right
5 that you were asked in this interrogatory in the first
6 question to indicate whether the level of foliage
7 protection for spruce achieved in the 1988 spray
8 program was adequate? That was the question.

9 MR. CHURCHER: A. Yes, that was the
10 first part.

11 Q. All right. And am I also correct
12 that the answer provided indicated, first, that the
13 results of the 1988 BT spray program ranged from -- I
14 am sorry, they are described as being "quite variable
15 ranging from good to poor"?

16 A. Yes.

17 Q. And that in fact, as I recall, is the
18 evidence that you gave the Board in-chief?

19 A. That's correct.

20 Q. The response to the interrogatory
21 goes on to suggest that when you look at the
22 defoliation figures for spruce in the summary tables,
23 Tables 6 and 8, and compare them to the untreated
24 plots, the results are "not inconsistent with those to
25 be expected from BT"?

1 A. That's correct.

2 Q. Do I fairly take it from that then
3 that insofar as you are concerned the results in the
4 1988 spray program, in terms of protection of spruce,
5 are consistent with what you would expect BT to
6 accomplish?

7 A. Yes, that would be a fair statement.

8 Q. Both with respect to white spruce and
9 balsam fir?

10 A. Generally speaking, yes.

11 Q. Thank you. Even without doing at
12 this point in time the express calculations that I have
13 asked you to do, Mr. Churcher, can we agree that it is
14 apparent, based on the efficacy data for the years that
15 we have looked at, 1985 through to 1988, that BT is not
16 a complete white knight, if I can describe it that way,
17 to the spruce budworm problem?

18 A. Most definitely.

19 Q. All right. Could I ask you then for
20 comparison purposes to look now at the 1983 results, to
21 be fair to have the other database also before the
22 Board. Do you have that, Mr. Churcher?

23 A. Yes, I do.

24 MR. FREIDIN: What exhibit?

25 MS. CRONK: That's Exhibit 660.

1 Q. Am I correct that in 1983 both BT and
2 chemicals were used in the treatment, or at least in
3 the spruce budworm program?

4 MR. CHURCHER: A. That is correct.

5 Q. Am I correct that in that particular
6 year the infestation was up, was high?

7 A. Yes.

8 Q. 9-million hectares, slightly more
9 than 9-million hectares?

10 A. That sounds familiar. Yes, in that
11 area.

12 Q. Okay. Could I you ask you to go to
13 page 4, please. Am I correct that at page 4 of the
14 report it is suggested that the results indicate that
15 BT was more effective on balsam fir than on white
16 spruce?

17 A. I am sorry, where are you looking on
18 page 4?

19 Q. Just give me a moment, sir, and I
20 will find it. The bottom of page 4 in the discussion
21 of the results -- I have two numbers on my exhibit
22 page.

23 A. Yes.

24 Q. 4 in the typewritten version--

25 A. That is where the confusion was.

1 Q. --and page 5 in the corner. I am
2 talking about the typewritten version, page 4?

3 A. Yes, I have found it now.

4 Q. All right. Do you agree that that's
5 the suggestion made?

6 A. Yes.

7 Q. A similar suggestion is made on page
8 5; namely, that BT was more effective on balsam fir
9 than on white spruce, the first paragraph?

10 A. Yes, that's correct.

11 Q. All right. Just dealing with that
12 first paragraph so that there is no confusion, it
13 refers to -- what are the two compounds referred to
14 there?

15 A. The two formulations of BT are
16 dipel-88, d-i-p-e-l, and the second one is novabac-3,
17 n-o-v-a-b-a-c.

18 Q. That was my question. There are both
19 BT formulations; are they not?

20 A. Yes, they are.

21 Q. And they are referred to as having
22 been more effective on balsam fir than on white spruce?

23 A. Yes, equally effective in reducing
24 budworm populations, protecting foliage, also evident
25 that each was more effective on balsam sir than on

1 white spruce.

2 Q. All right. Equally effective meaning
3 as between the two BT formations they were equally
4 effectively?

5 A. Precisely.

6 Q. All right. And again on page 6 the
7 same suggestion is made, that excellent results were
8 achieved on balsam fir in the area treated with dipel
9 but, as noted earlier, results on white spruce
10 continued to be disappointing?

11 A. Yes.

12 Q. All right. The chemical results, if
13 we go to page 6 in the discussion of the chemical
14 results, would you agree with me that the report
15 confirms that spraying took place too late?

16 A. Yes.

17 Q. If we look at the tabular results,
18 they start at Table 7--

19 A. Yes.

20 Q. --and carry over through a number of
21 tables. Could I ask you to go please to Table 12.

22 MS. CRONK: I apologize, Mr. Chairman,
23 for the quality of the photocopying. I just noticed it
24 is difficult to read through the highlighting.

25 Q. Can you read yours? Do you have a

1 copy, Mr. Churcher, where the results are legible,

2 MR. CHURCHER: A. Yes, there is one I
3 would like to clarify.

4 Q. Fine.

5 A. The others I believe I can read.

6 Q. Okay.

7 A. Maybe we will just start at the top
8 to make sure I am correct. There is -- you have
9 highlighted the --

10 Q. 56.

11 A. 56, 71, 60, 76, 83 and 56?

12 Q. That is correct. Looking at the
13 results reported for white spruce in Table 12, can we
14 agree that the data for defoliation protection achieved
15 does demonstrate that difficulty was experienced in
16 adequately protecting the white spruce?

17 The numbers reflecting defoliation which
18 actually occurred are quite high?

19 A. Yes, that's what the results in that
20 column would indicate.

21 Q. All right. We have got results
22 ranging in fact from 56 per cent defoliation to as high
23 as 83 per cent?

24 A. That's correct. The corresponding
25 defoliation in the untreated plots was 90 per cent to

1 94 per cent and we are dealing with reasonably high
2 numbers of insects on an 18-inch branch tip, up to 71
3 insects on an 18-inch branch tip.

4 Q. That may be, Mr. Churcher, but would
5 you agree with me that these results are not what you
6 had hoped for in terms of protection for white spruce?

7 A. Yes.

8 Q. Then going to the 1984 results,
9 Exhibit 661, would you agree with me that these results
10 again were based on the use of both chemicals and BT?

11 A. That's right.

12 Q. Could we go to page 12 please where
13 the results are discussed. Am I correct, Mr. Churcher,
14 that the description of the results suggests that the
15 results using chemicals were excellent both in terms of
16 population reduction and foliage protection, certainly
17 with respect to matacil?

18 A. I am sorry, we are looking on page
19 12?

20 Q. Page 12, the full lengthy paragraph
21 on that page. Perhaps I will read it to you, about
22 eight or nine lines down without counting it reads:

23 "On June 20, 1984 approximately 185 ha
24 of the moose yard was aeriially
25 sprayed with Matacil."

1 And matacil is a chemical; is it not?

2 A. That's correct.

3 Q. "Unfortunately, most budworm larvae
4 were in the 5th or 6th instar so
5 considerable defoliation had already
6 occurred."

7 Those results are dealt with in Table 9;
8 correct?

9 A. Yes.

10 Q. Then continuing:

11 "Matacil was also applied to
12 approximately 215 ha of white
13 spruce plantations in Rogers Township.
14 This particular area is part of a study
15 to assess the impact of continued spruce
16 budworm defoliation on growth in white
17 spruce plantations. Consequently, it has
18 been necessary to limit budworm impact in
19 some of the plantations to act as
20 controls. Therefore, since 1981 a
21 particular plantation in that township
22 had been treated each year with Matacil."

23 A. Yes.

24 Q. "It was treated once again on June
25 17 when the larvae were mostly in the

1 4th and 5th instars. The results of the
2 treatment were excellent both in terms of
3 population reduction and foliage
4 protection."

5 Is that what it says?

6 A. Yes.

7 Q. All right. It also indicates that
8 sevin, a particular formulation, sevin-4 oil had never
9 before been used against spruce budworm in the Province
10 of Ontario; is that correct?

11 A. Yes.

12 Q. Am I correct that that's another
13 chemical?

14 A. Yes, it is.

15 Q. And that it was used in this spray
16 program?

17 A. Yes, it was.

18 Q. And that the results, as described in
19 this report, indicate that it was as effective, as
20 effective as matacil in reducing budworm productions
21 and protecting foliage?

22 A. That's correct.

23 Q. And as effective as matacil, if we
24 are to go by the results reported in the preceding
25 sentences, means that the results were excellent both

1 in terms of population reduction and foliage protection
2 from the use of that chemical?

3 A. That would be correct.

4 Q. And if we go over to page 125, Table
5 9, would you agree with me that the data itself bears
6 those conclusions out expressly with respect to the use
7 of chemicals?

8 A. Yes, definitely.

9 Q. In some instances in fact 100 per
10 cent reduction in insect population was achieved?

11 A. Yes.

12 Q. And very high defoliation protection
13 was achieved in four of the six plots treated?

14 A. Yes.

15 Q. All right. In the circumstances of
16 all of these results concerning spruce budworm, Mr.
17 Churcher, can you agree with me that it would be
18 advantageous for the control of that insect in the area
19 of the undertaking if chemical treatment options were
20 available?

21 A. Most definitely.

22 Q. And would you agree with me, and
23 apropos of our discussion earlier this morning, that as
24 a professional it would be preferable, would it not, if
25 clear authority to use chemicals was available to

1 you -- if clear authority to use chemicals in
2 appropriate circumstances existed for the professionals
3 operating in this field?

4 A. That's correct.

5 Q. All right.

6 MS. CRONK: Then the next efficacy data
7 reports included in this exhibit, Mr. Chairman, relate
8 to gypsy moth. There are a series of them, I don't
9 propose to go through them unless Mr. Churcher feels
10 the need.

11 Q. Can I suggest some general
12 conclusions about the gypsy moth data that's before the
13 Board.

14 First, I suggest the situation is
15 different from that that we have just reviewed with
16 respect to spruce budworm in the sense that it clearly
17 demonstrates in the gypsy moth situation that BT has
18 been very effective in the kind of protection
19 objectives one would want with respect to gypsy moth?

20 A. By and large, yes.

21 Q. All right. May I then put to you,
22 Mr. Churcher, a series of propositions relating to this
23 database as a whole, all of the efficacy data that we
24 have looked at, and I would ask whether you agree or
25 disagree.

1 The first is simply this, and I put it to
2 you in a different way a little earlier, I suggested if
3 you agreed that BT was not a white knight when it came
4 to dealing with spruce budworm; I put it to you now
5 that it is quite clear, on the actual efficacy data
6 available from various spray programs carried out in
7 the province, that BT is not a universal solution to
8 insect/pest problems in the area of the undertaking.
9 Would you agree?

10 A. Yes, I would.

11 Q. Would you also agree that it is quite
12 clear that it is not, on the data available, as
13 effective a control agent as are chemicals in dealing
14 with oak leaf shredder?

15 A. Based on the data we have reviewed,
16 yes.

17 Q. All right. And that is all there is,
18 you told me?

19 A. That's correct.

20 Q. Would you also agree that based on
21 the data we have reviewed it appears -- BT appears to
22 be a more effective control or protection agent against
23 spruce budworm for balsam fir than it does with respect
24 to white spruce?

25 A. Yes.

1 Q. And the most recent efficacy data
2 available demonstrates a continuing problem I suggest
3 in adequately protecting white spruce with the use of
4 BT against spruce budworm?

5 A. Yes.

6 Q. And further that there are situations
7 quite apart from those specific ones that I have put to
8 you where chemical insecticides indeed may be the only
9 efficacious option I suggest, for example the
10 circumstances you have already described to the Board,
11 where insect infestations are indeed very high?

12 A. Yes, that's correct.

13 Q. All right. Can you think of any
14 others where that would be the case, apart from the
15 ones I just put to you?

16 A. Obviously in the case where there is
17 no biological alternative and the only alternative is
18 chemicals.

19 Q. All right. Would you agree--

20 A. Nothing else--

21 Q. I'm sorry,

22 A. --that immediately comes to mind.

23 Q. Would you agree with me, Mr.

24 Churcher, in the circumstances based on this data, that
25 it would be disadvantageous for proper pest management

1 in the area of the undertaking to have chemicals not
2 available to those charged with the responsibility for
3 protecting the forest?

4 A. Yes, that would indeed be a
5 disadvantage.

6 Q. And would you also agree with me that
7 while there are a whole host of insects which are major
8 pest problems in the area of the undertaking, at least
9 on a periodic basis in some cases, there are many for
10 which BT cannot now be used at all based on current
11 authorizations?

12 A. That's correct.

13 Q. And further, even were it registered
14 it is not effective against many of those pests?

15 A. That's correct.

16 Q. And in those cases, therefore, we are
17 confronted or have the situation where only chemical
18 solutions are available?

19 A. Yes.

20 Q. All right. In addition, is it - I
21 would ask for your opinion - is it possible, Mr.
22 Churcher, that in the future, as with any other agent
23 being used for purposes of this kind in forestry or
24 indeed in other use applications, it is possible that
25 unexpected hazards associated with BT could be

1 discovered reducing or limiting its availability.

2 That is a possibility; is it not?

3 A. Yes, it is a possibility.

4 Q. All right. For example, problems of
5 that kind could arise with respect to production of the
6 product, quality production control?

7 A. That is correct.

8 Q. Or inherent to the product itself?

9 A. Yes.

10 Q. For all of those reasons is it not
11 preferable that suitable chemical options be available
12 and clearly available to pest managers in the area of
13 the undertaking?

14 A. Yes.

15 Q. Not just in the future but today?

16 A. Yes, I can agree with that statement.

17 Q. Thank you. And, in fairness, I
18 suggest that it comes to this - and I would ask again
19 whether you agree or disagree - that there are
20 circumstances in which biological insecticides are both
21 useful and effective and should be used. Do you agree?

22 A. Yes, I do.

23 Q. There are other circumstances
24 however, I suggest, where chemical insecticides would
25 be more effective and should be used. Do you agree?

1 A. Yes, I do.

2 Q. All right. And the pest manager
3 effectively I suggest needs both if he or she is to
4 properly carry out the objectives of the Ministry's
5 pest management strategies. Do you agree?

6 A. That is correct, yes.

7 Q. And whether they are the strategies
8 or not, both are needed, I suggest, to effectively
9 protect the timber resource in the area of the
10 undertaking?

11 A. Yes, I would agree with that.

12 Q. All right. Now, two other areas very
13 briefly, Mr. Churcher.

14 I put a series of questions yesterday to
15 Mr. Galloway and to others having regard to what I
16 suggested were both the merits of and the necessity of
17 continuing research and development for herbicides. Do
18 you recall the discussion in general terms?

19 A. Yes, I do.

20 Q. Would you agree with me, dealing with
21 insecticides as distinct from herbicides, that for all
22 of the types of reasons we discussed yesterday that
23 there is a current and continuing need for continued
24 research and development for new insecticides?

25 A. Yes.

1 Q. As well as herbicides?

2 A. Yes, definitely.

3 Q. And is that not so both for the
4 reasons we discussed yesterday but, in particular,
5 because there may come a day when the agents we need to
6 cope with the pests that we experience in the forest
7 are not available unless that research and development
8 has been done?

9 A. Precisely.

10 Q. There have, for example; have there
11 not, been recent examples of chemicals being withdrawn
12 from active commercial production for forestry uses in
13 instances where those very chemicals had, prior to
14 1985, been used for forestry insecticide applications?
15 Are you aware of those circumstances, Mr. Churcher?

16 A. Yes. The example I can think of is
17 the chemical insecticide aminocarb better known as
18 matacil.

19 Q. All right. And in fact with respect
20 to matacil, is it not the case that in the efficacy
21 data that we reviewed today it was the chemical agent
22 used with what was described as very effective results
23 in a number of instances, particularly with respect to
24 spruce budworm?

25 A. That is correct.

1 Q. And is it also not the case that the
2 manufacturer of that product has effectively withdrawn
3 the chemical from commercial production for forestry
4 use or do you know?

5 A. Yes, in fact he has -- yes, they
6 have.

7 Q. All right. Would you agree with me
8 that given the enormity of the insect problem in the
9 area of the undertaking, in the interests of effective
10 and proper pest management, we can't afford to lose any
11 more technical options where existing technology that
12 is suitable to meet the pest problem?

13 A. Yes, I would agree with that.

14 Q. All right. And then finally, Mr.
15 Churcher, are you familiar with the concept of
16 integrated pest management, that phrase integrated
17 phrase management?

18 A. Yes, I am.

19 Q. All right. Can you tell the Board
20 very briefly what the concept means, as you understand
21 it?

22 A. Essentially it's the integration of a
23 number of different chemical control methods. In my
24 direct evidence I believe I referred to six major types
25 of control techniques: cultural control and mechanical

1 control and biological control, chemical control,
2 regulatory control, and genetic or reproductive control
3 I believe is the six.

4 Integrated pest management would
5 integrate each and ever yone or as many of those that
6 are applicable in any given situation so you do not
7 rely solely on one specific control technique or
8 control method.

9 Q. And when you say that that concept
10 would integrate a number of options, I take it you are
11 not referring just to chemicals?

12 A. Precisely, yes.

13 Q. All right. Therefore, it would
14 integrate biological options, chemical options, other
15 options as appropriate?

16 A. That's right.

17 Q. Do you agree, Mr. Churcher, that an
18 integrated pest management approach is a desirable
19 approach to forest insect management in the area of the
20 undertaking?

21 A. Most definitely.

22 Q. And that it involves -- well, perhaps
23 I will put it this way: Would you also agree that an
24 approach of that kind cannot become a reality unless a
25 variety of techniques are developed and made available

1 to the timber manager to cope with pest problems?

2 A. Yes.

3 Q. So you need both the variety of
4 techniques and the concept of intermixing those
5 techniques as appropriate?

6 A. That is correct.

7 Q. It does not mean, I suggest, that
8 approach -- sorry let me back up. That approach does
9 not mean using no chemicals; am I right?

10 A. That is correct, yes.

11 Q. What it means is using a combination
12 of techniques to achieve control including, where
13 appropriate, chemical insecticides?

14 A. Yes.

15 Q. And would you agree with me that any
16 policy, direction, prevailing practice, prevailing
17 convention, any language you care to use which has the
18 effect, in a practical sense, of prohibiting the use of
19 chemicals is inconsistent with an integrated pest
20 management approach?

21 A. Yes, I would agree with that.

22 Q. Thank you very much, Mr. Churcher.

23 MS. CRONK: Subject to the undertakings,
24 Mr. Chairman, those are my questions.

25 THE CHAIRMAN: Thank you, Ms. Cronk.

1 MS. CRONK: Thank you very much, panel.

2 THE CHAIRMAN: Well, ladies and
3 gentlemen, I don't think it would make much sense
4 starting another party prior to a lunch break. So I
5 think we will rise for lunch at this time.

6 Mr. Hanna?

7 MR. HANNA: Mr. Chairman, if I could just
8 address the Board for a moment about scheduling. I
9 believe in our gauging of time we expect that we will
10 take a full day. I have spoken to Ms. Kleer and I
11 believe she is expecting to be in the order of two to
12 three hours.

13 And just looking at it with Friday
14 afternoon coming bearing upon us and whatever, and we
15 hadn't quite expected things to go so long as they have
16 this morning, I wonder if it would be at all possible
17 if we could perhaps take as truncated a lunch as
18 possible and perhaps even consider sitting even a
19 little bit later this evening to ensure that we could
20 all get all of our cross-examination in.

21 The reason...

22 THE CHAIRMAN: Just a moment. Mr. Hanna,
23 there is two difficulties with what you are proposing.
24 One is, in starting at nine o'clock and going through
25 till five, I think that places an unreasonable burden

1 on both the parties and the Board to put in a longer
2 day than that. I think if you count out the number of
3 hours, we are probably sitting a good six to six and a
4 half hours, and that is a long time to absorb the kind
5 of technical evidence that the parties and the Board is
6 faced with.

7 So I don't think we would be sitting
8 longer today than the normal time, which I suggest
9 might be 4:30, five o'clock or in around that time.

10 The second thing is is that tomorrow
11 morning we had originally scheduled the scoping session
12 for Panel 14 which we intend to carry on with because
13 we will be reaching Panel 14 in the not too distant
14 future.

15 What is the problem of you continuing on
16 with your cross-examination if you don't complete it
17 tomorrow on Monday?

18 MR. HANNA: Unfortunately, Mr. Chairman,
19 I'm in Newfoundland for all of the following week.
20 Unfortunately, I had made that commitment and it's very
21 difficult for me to break that.

22 THE CHAIRMAN: Well, what about you
23 switching with Ms. Kleer in terms of their position?

24 MS. KLEER: Well, that is problem for us
25 for next week I mean, and I can't be here tomorrow and

1 that's why I had made arrangements earlier to switch
2 with Mr. Castrilli.

3 MS. CRONK: I feel, as I don't have
4 defense counsel here, that I have to rise on my own
5 behalf and I did speak to Ms. Kleer and asked her
6 before we reconvened at the break whether she wanted me
7 to stand down the rest of my cross.

8 So I say that only because I'm apologizing
9 to my friends for taking the lengthy time that it took,
10 but there are uncontrollable factors in a site-specific
11 situation beyond my control.

12 THE CHAIRMAN: Ms. Kleer, is it
13 impossible for you to reattend at some time next week
14 other than Monday?

15 MS. KLEER: Well, it's not impossible.
16 It does raise a little bit of a problem with respect to
17 cost because it costs a lot of money to come up every
18 time, I'm sure you are all aware of that.

19 Monday is gone, Tuesday is gone, I could
20 potentially come up on Wednesday.

21 ---Discussion off the record

22 MS. KLEER: Mr. Chairman?

23 THE CHAIRMAN: Yes.

24 MS. KLEER: How long do you expect the
25 scoping session will take?

1 THE CHAIRMAN: We are not sure, but we
2 would think it shouldn't take much more than an hour at
3 the outset.

4 MS. KLEER: And what time will you be
5 sitting until tomorrow afternoon?

6 THE CHAIRMAN: Probably until two
7 o'clock. We could sit until two o'clock. The only
8 other option that we are considering is the possibility
9 of having Mr. Hanna start off after lunch and go until
10 say five o'clock or 5:30 and then take a break for
11 dinner and then have you go tonight, have an evening
12 session.

13 MR. FREIDIN: Mr. Chairman, I only rise
14 to indicate that that is all subject to the witnesses
15 also being able to absorb what is going on and being
16 helpful to the Board after a full day of
17 cross-examination.

18 I'm sure they are willing to do it, if in
19 fact they feel that they can fulfill that function, but
20 not otherwise.

21 THE CHAIRMAN: Well, we realize its onus.

22 Why don't we do this, why don't the
23 parties get together over the lunch hour and try and
24 ascertain, bearing in mind what is happening next week
25 and what we should be covering next week in terms of

1 the remaining parties who have to examine, where we
2 could fit everybody in.

3 We feel that the scoping session should
4 take place because that is going to determine -- and
5 there has to be a lead time before the panel is
6 actually called so that you can readjust. That
7 shouldn't take too long; it may not take a full hour,
8 it may take something less than that.

9 MS. MURPHY: Mr. Chairman, it might help
10 at this point to have an actual reassessment of the
11 length of time people think they would be in the cross
12 because it's been a little fuzzy and maybe that might
13 help.

14 THE CHAIRMAN: All right. Well, okay.

15 MS. KLEER: I'm expecting two to three
16 hours.

17 THE CHAIRMAN: You are expecting two to
18 three hours. You are expecting no more than a day?

19 MR. HANNA: That's right, a full day.

20 THE CHAIRMAN: Which would be a full day.
21 Ms. Seaborn?

22 MS. SEABORN: I would expect, Mr.
23 Chairman, a couple of hours and, depending on my
24 friends' cross-examinations, it could stretch to half a
25 day, but certainly no longer than that.

1 THE CHAIRMAN: And how about -- who else
2 have we got? Oh sorry, Mr. Castrilli? Right.

3 MR. CASTRILLI: Mr. Chairman, my original
4 assessment was less than a day. It's probably
5 premature today to give you a revised assessment
6 because it may just well be contracted as a result of
7 my friends' cross-examination. I think at this time a
8 day is still in the ballpark.

9 THE CHAIRMAN: Okay. And who else have
10 we got?

11 MS. MURPHY: That's it.

12 THE CHAIRMAN: Sorry, just
13 re-examination?

14 MS. MURPHY: As far as we know. We have
15 not heard anything from anyone else, Mr. Chairman.

16 THE CHAIRMAN: All right. We calculate
17 roughly three full days without re-examination at this
18 point in time and next week we have three and a half
19 days effectively left, so...

20 MS. SEABORN: Mr. Chairman, perhaps we
21 could take your original suggestion and have counsel
22 speak about it during the lunch hour and if the Board
23 is willing, perhaps we could just take an hour for
24 lunch and at least we could get as far as we could this
25 afternoon, giving the indication that you do not want

1 to sit late.

2 THE CHAIRMAN: Okay. The reason for the
3 debate up here is because the Board was going to use
4 part of its lunch break to review some of the material
5 for the scoping session tomorrow.

6 We could of course put that off until
7 later today, but not if we are going to have an evening
8 session. So, we are a little reluctant to cut down the
9 lunch hour.

10 MS. MURPHY: Would there be any point in
11 considering doing the scoping this evening, that
12 wouldn't perhaps tax so much.

13 THE CHAIRMAN: Yes, that would be a more
14 helpful suggestion actually.

15 MR. FREIDIN: I think everybody is here
16 who would probably be here, except for Mr. Edwards.

17 MS. SEABORN: Mr. Edwards -- I was just
18 going to say perhaps Mr. Mander could call Mr. Edwards'
19 office and Mr. Colborne.

20 THE CHAIRMAN: All right. We will try
21 and get in touch and see if he would be available for
22 that. He would be the only one I think that would
23 normally show up that is not now present.

24 MS. SEABORN: Perhaps Mr. Colborne's
25 office as well, Mr. Chairman.

1 THE CHAIRMAN: All right. Why don't we
2 do this, why don't we break for lunch. If that is
3 going to happen tonight, we will need the time at the
4 lunch hour, so we will break for an hour and a half.

5 We will come back and we will sort out
6 very quickly the order between the two parties who have
7 the difficulties and, hopefully, we can work it all
8 out.

9 Thank you. We'll be back at two o'clock.
10 ---Luncheon recess taken at 12:30 p.m.

11 ---On resuming at 2:05 p.m.

12 THE CHAIRMAN: Thank you. Be seated,
13 please.

14 MS. CRONK: Mr. Chairman, just before I
15 close my cross-examination subject to the undertakings,
16 I neglected to file an exhibit.

17 THE CHAIRMAN: Okay.

18 MS. CRONK: I wish to file and indicate
19 for the Board that in response -- I can indicate for
20 the Board that in response to OFIA Interrogatory No. 6
21 on Panel 12 a document entitled Guidelines for the
22 Aerial Application of Herbicides was produced and I
23 would like to file that as the next exhibit.

24 THE CHAIRMAN: Exhibit 662.

25 MS. CRONK: (handed)

1 THE CHAIRMAN: Thank you.

2 ---EXHIBIT NO. 662: Document entitled: Guidelines for
3 the Aerial Application of
Herbicides.

4 MS. CRONK: Thank you, Mr. Chairman.

5 Mr. Churcher, did you have time over the
6 lunch hour to do the calculations that I asked for, or
7 should we come back to that at some later time?

8 MR. CHURCHER: No, I have done the
9 calculations and I can to your undertaking at any time.

10 MS. CRONK: Could I take two minutes now,
11 then, Mr. Chairman?

12 THE CHAIRMAN: Yes.

13 FURTHER CROSS-EXAMINATION BY MS. CRONK:

14 Q. Let's deal first with the 1985 spruce
15 budworm results. I had suggested to you that on 11 out
16 of 18 plots there had -- that included both balsam fir
17 and white spruce, there had been an inadequate result,
18 a failure if standards of 50 and 40 per cent were used.

19 In our recalculations it is in fact 10
20 out of 18. Can you confirm that that's accurate?

21 MR. CHURCHER: A. That is correct.

22 Q. And with respect to balsam fir, am I
23 correct that there were 5 failures by those standards
24 out of 10 plots; in other words, 50 per cent of all
25 plots treated?

1 A. By those standards, yes.

2 Q. And for white spruce there were 5
3 failures out of 3 for 63 per cent failure to meet the
4 standards?

5 A. Yes, that's correct.

6 Q. All right. And with respect to the
7 1988 spruce budworm spray program, am I correct -- and
8 I should point out because I don't know how you have
9 done the calculations, am I correct that included in
10 the plots treated were some black spruce--

11 A. That's correct.

12 Q. --as well as white spruce, and the
13 questions I put to you were directed to balsam fir and
14 white spruce?

15 A. That is correct. So in my
16 calculations we excluded all the black spruce which was
17 denoted in the tables by BS.

18 Q. All right, thank you. Then with that
19 exclusion, am I correct that for white spruce there was
20 a failure in accordance with the standards that we have
21 been speaking about in the sum of 55 per cent?

22 A. That is correct.

23 Q. And that is 26 out of a total of 47
24 white spruce treated plots?

25 A. That is correct.

1 Q. And for black -- I am sorry, balsam
2 fir, the percentage failure rate was 24 per cent being
3 14 out of 59 balsam fir plots?

4 A. That is also correct.

5 Q. And overall am I correct that the
6 total failure rate, including balsam fir and white
7 spruce, again by those standards, was 38 per cent?

8 A. Yes.

9 Q. Would you agree with me, Mr.
10 Churcher, that clearly the results with respect to
11 white spruce are unacceptable in the sense that there
12 is -- that is not an adequate level of protection,
13 certainly wouldn't be the objective?

14 A. Given the standards that we were
15 working towards, yes, I would agree with that.

16 Q. And, secondly, the data clearly
17 demonstrates that there was a much higher percentage of
18 white spruce inadequate protection than balsam fir?

19 A. Yes.

20 Q. 55 per cent compared to 24 per cent.

21 A. Yes.

22 MS. CRONK: Thank you, those are my
23 questions, Mr. Chairman. Thank you very much.

24 THE CHAIRMAN: Thank you, Ms. Cronk.
25 Before you leave, I have your Exhibit 650--

1 MS. CRONK: Oh thank you.

2 THE CHAIRMAN: --that I can return at
3 this time.

4 MR. CHURCHER: Before we leave, I was of
5 the understanding that there was one additional
6 undertaking which I had agreed to.

7 MS. CRONK: Thank you, Mr. Churcher, I
8 had obviously overlooked it.

9 MR. CHURCHER: And that was to go over
10 the -- with regard to the 1986 results you asked me to
11 review the results in Thunder Bay and Nipigon Districts
12 comparing those blocks that had been sprayed at once 20
13 BIUs, once at 30 BIUs and twice at 30 BIUs and how I
14 would characterize the results for each.

15 MR. CRONK: Fine. Thank you.

16 MR. CHURCHER: Having reviewed that data
17 I have come to the conclusion that on the two plots --
18 or two blocks that received double applications of 30
19 BIUs the results could be characterized as good, 17 per
20 cent and 31 per cent foliage protection.

21 On the blocks that had one application at
22 30 BIUs, they were a little bit more variable, ranging
23 from 5 per cent to 53 per cent defoliation, but the
24 majority seem to be in the high 20s and low 30s of
25 defoliation.

1 And the final application rate was a
2 single application at 20 BIUs and, again, there were
3 highly variable results, the range was even larger,
4 ranging from 13 to 89 per cent defoliation, and the
5 average or most of them seemed to fall into the 60 to
6 70 per cent category. I have not separated this out as
7 balsam fir or white spruce, I just looked at it --

8 MS. CRONK: Q. That's fine. Looking
9 then at the three categories, can we agree that the
10 best defoliation avoidance - I don't know what language
11 you use - defoliation protection results were achieved
12 where there was a double application?

13 MR. CHURCHER: A. Actually the best
14 examples occurred where there was only single
15 application, but -- and unfortunately there were only
16 two blocks where we did have a double application, so
17 it is not exactly a good sample size to draw from
18 statistically and all those things.

19 But, yes, the best results overall that
20 we obtained were when we had a double application.

21 Q. Thank you very much.

22 MS. CRONK: Thank you, Mr. Chairman.

23 THE CHAIRMAN: Thank you, Ms. Cronk.

24 Now, Ms. Kleer, I take it we sorted out
25 the order for this afternoon?

1 MS. KLEER: Yes, I will go as quickly as
2 possible without limiting myself and then Mr. Hanna
3 will follow after me.

4 THE CHAIRMAN: Okay. And with regards to
5 the scoping session, I believe Mr. Mander attempted to
6 contact Mr. Edwards. He is available tonight at --
7 after seven for the scoping session.

8 We don't think it will take more than
9 about a half hour and we are suggesting, depending on
10 when we finish this afternoon, if Mr. Edwards can make
11 it over here earlier, we may try and tack it on to the
12 end of this afternoon's session and then break for the
13 day.

14 We feel that we can't go ahead with the
15 scoping session until Mr. Edwards is here because he
16 obviously wants to participate, he has submitted a
17 statement of issues and he is expecting it to happen
18 tomorrow, but he can accommodate us later today if
19 necessary. If he can't make it until this evening,
20 then we would break for dinner and come back for half
21 an hour or so.

22 We will continue, Mr. Hanna, with you
23 then tomorrow and we would be prepared, I suppose, to
24 sit as late as three in order that you could complete
25 and that would allow you, in any event, even if you

1 couldn't start today, a full day bearing in mind we
2 would start at 8:30 and we would take an we'll take an
3 abbreviated lunch, if necessary, depending on where you
4 are.

5 Just before you start, I just thought I
6 might make just two announcements while everyone is
7 here and, that is, the statement of issues with respect
8 to Panel 15 the Board would expect to be filed by
9 August 8th, which is the date that we return here after
10 the summer break. We would then hold the scoping
11 session shortly thereafter. We won't set an exact date
12 for it because we don't know where we will be with
13 respect to Panel 14 at that time.

14 The second thing is that the site
15 visit -- not the site visit, the satellite hearing,
16 which the Board is proposing for Dryden, we are still
17 awaiting a response from Ms. Murphy on that or any of
18 the other parties a final response.

19 We are suggesting that that response be
20 made by the end of next week and we think there will be
21 sufficient time towards the end of next week to set
22 aside a half hour or so to deal with that.

23 We are suggesting, although we gave a
24 couple of possible dates, we are suggesting the week
25 of - and it may not take of course a whole week - but

1 we are suggesting the week of September 25th for the
2 visit to Dryden. The reason for that is that the first
3 week of October, which would be another possibility, is
4 one that is occupied by many people working for the
5 government with holidays and/or fishing and/or hunting
6 concerns. So that we want to make sure that the people
7 in Dryden, No. 1, are not on summer vacation; and, No.
8 2, are not occupied with other pursuits unnecessarily
9 so that they have an opportunity to attend the hearing
10 if they so wish.

11 MS. SEABORN: Mr. Sutterfield is
12 thrilled, Mr. Chairman.

13 THE CHAIRMAN: Well, Mr. Sutterfield I
14 think was one of the people that advised the Board
15 surreptitiously that the first week of October would
16 not perhaps be a suitable week. So let it not be said
17 that we don't take everyones' concerns into account.

18 Okay. We are ready to go, Ms. Kleer.
19 Thank you.

20 MS. KLEER: All right.

21 CROSS-EXAMINATION BY MS. KLEER:

22 Q. I would like to address a few
23 questions first to Mr. Churcher arising out of your
24 answers from this morning.

25 You are qualified as an entomologist; is

1 that correct?

2 MR. CHURCHER: A. That's correct.

3 Q. When you were giving your answers to
4 this morning's questions regarding efficacy, your
5 opinions, were they based upon your entomology
6 background?

7 A. Yes, they were.

8 Q. Would it be fair to say that a
9 decision whether or not to use a pesticide is based on
10 considerations that include efficacy, but are certainly
11 not limited to efficacy?

12 A. That is correct.

13 Q. Okay. Would these things include
14 health -- human health effects, other environmental
15 risks?

16 A. Yes, most definitely, as well as
17 other criteria.

18 Q. Okay. Are you qualified to give
19 evidence with respect to human health effects?

20 A. No, I am not.

21 Q. Okay. So then it was strictly as an
22 entomologist and strictly with respect to efficacy that
23 you gave your answers this morning?

24 A. Yes, that's correct.

25 Q. Thank you very much. My next set of

1 questions I think are going to be directed to Mr.
2 Nicholson. I think you deal with the issue of notice;
3 is that correct?

4 MR. NICHOLSON: A. That's correct.

5 Q. Okay.

6 MS. KLEER: I would like then to
7 introduce a set of interrogatories and other exhibits
8 that we are going to be referring to at this time
9 before I begin your questions.

10 MS. MURPHY: And just to assist my
11 friend, Mr. Nicholson or Mr. Galloway or Mr. Hynard,
12 there are a number of witnesses who can deal with this.

13 THE CHAIRMAN: Okay.

14 MS. KLEER: Thank you. Okay. The
15 first -- I think what I will do is I will first
16 distribute the materials and then introduce them as
17 interrogatories.

18 THE CHAIRMAN: Very well.

19 MS. KLEER: (handed)

20 THE CHAIRMAN: Thank you. Do you want
21 these in as separate exhibits or the same exhibit?

22 MS. KLEER: No, they will be separate
23 exhibits. Some of these I think have already been
24 introduced earlier but not in the arrangement that they
25 are here, so I thought to do it separately.

1 Okay, what number are we at?

2 THE CHAIRMAN: We are at 663.

3 MS. KLEER: Okay. So I would like 664 to
4 be Nishnawbe-Aski --

5 THE CHAIRMAN: Sorry, no, we are at 663.

6 MS. KLEER: Okay, sorry.

7 THE CHAIRMAN: That will be the next one.

8 MS. KLEER: 663 then would be Panel 12
9 interrogatories by Nishnawbe-Aski Nation. Then 664
10 would be Panel 13 interrogatories by Nishnawbe-Aski
11 Nation.

12 THE CHAIRMAN: Okay. The first one is
13 Panel 12 evidence, Exhibit 663, will be question No. 6;
14 is that correct?

15 MS. KLEER: Well, Question No. 6 and 7.

16 THE CHAIRMAN: Sorry.

17 MS. KLEER: There are a group of them.

18 THE CHAIRMAN: Sorry, Question 6 and 7,
19 that's correct.

20 ---EXHIBIT NO. 663: Nishnawbe-Aski Nation
21 Interrogatory Question Nos. 6 and
22 7 (Panel 12).

23 THE CHAIRMAN: And the next one will be
24 Exhibit 664 and that will start off with Panel 13
25 evidence Question No. 4?

MS. KLEER: Questions No. 4 through 9.

1 THE CHAIRMAN: Four through nine.

2 ---EXHIBIT NO. 664: Nishnawbe-Aski Nation
3 Interrogatory Question Nos. 4-9
(Panel 13).

4 THE CHAIRMAN: The next one will be
5 Exhibit 665, and is that --

6 MS. CRONK: Excuse me, Mr. Chairman, I
7 think that's already in as an exhibit, the next one.

8 THE CHAIRMAN: Sorry?

9 MS. KLEER: Do we have a number for that
10 one?

11 MS. CRONK: The next document, pardon me,
12 has already been marked as an exhibit. I believe it is
13 the complaints -- summary of documented complaints
14 received by MNR districts.

15 THE CHAIRMAN: Oh, I see.

16 MS. MURPHY: That's correct. In fact, it
17 is the updated version and I believe it is Exhibit
18 621 -- 622 -- 621? Yes, 622.

19 MS. KLEER: 622.

20 THE CHAIRMAN: All right. So I suggest
21 we don't mark this at all, we will just go with 622.

22 MS. KLEER: Okay.

23 MS. MURPHY: 621.

24 THE CHAIRMAN: Sorry, 621.

25 MS. KLEER: 621.

1 THE CHAIRMAN: And, therefore, Exhibit
2 665 will be the residue of 2,4-D article.

3 MS. KLEER: Yes.

4 THE CHAIRMAN: By Serins, Campbell and
5 Muet.

6 ---EXHIBIT NO. 665: Article pertaining to 2,4-D
7 residue by Serins, Campbell and
8 Muet.

9 THE CHAIRMAN: And then 666 will be the
10 1984 document entitled: Posting of Pesticide Treated
11 Areas.

12 ---EXHIBIT NO. 666: Document entitled: Posting of
13 Pesticide Treated Areas.

14 MS. KLEER: Before I begin my questions I
15 would like to refer to the end of 664. The last page
16 of that exhibit is a list of NAN communities in the
17 current area of the undertaking.

18 Formerly Donna Palowski had provided or
19 had said she would provide an updated list to that list
20 which is given in the answer to Question No. 9 on Panel
21 13 and what's attached at the end is that updated list
22 and there are very few changes.

23 Q. Okay, if I might begin then. Mr.
24 Nicholson, on Panel 12, which is on the Panel 12
25 interrogatories, being Exhibit 663 on Interrogatory 6
and the answer to (c), I would like to refer to that.

1 MR. NICHOLSON: A. We are still
2 searching for 663. Okay.
3 Q. Do you have those copies?
4 A. Question 6?
5 Q. Yes.
6 A. Yes.
7 Q. Okay. In the first paragraph the
8 answer advises that the annual work schedule is
9 available for inspection. My first question is: How
10 far is the Nishnawbe-Aski Nation community of Slate
11 Falls from Sioux Lookout?
12 A. Can you bear with me just a minute I
13 am on --
14 Q. Sure. This is Panel 12.
15 A. Panel 12, Question 6.
16 Q. Yes. And the answer to item (c).
17 MS. MURPHY: Do you have copies -- any
18 extra copies for the witness? We will just take a
19 second and make sure that the witnesses have copies.
20 MS. KLEER: Q. Do you have that before
21 you now?
22 MR. NICHOLSON: A. Yes, we do.
23 Q. Okay. I will repeat my first
24 question. How far is the NAN community of Slate Falls
25 from the district office in Sioux Lookout? Do you have

1 an estimate?

2 A. I would have to refer that to
3 somebody else not being intimately familiar with that
4 geography.

5 Q. Does anyone know whether you can
6 drive from Slate Falls to Sioux Lookout?

7 MR. BUSS: A. I don't believe at this
8 time you can drive.

9 Q. Okay. I think that's my
10 understanding as well. So that when you indicate that
11 the annual work schedule is available for inspection,
12 does that mean that someone would be there in the
13 office to explain where in the document is contained
14 information on tending and maintenance? Is that what
15 available means?

16 MR. NICHOLSON: A. Do you mean would the
17 document be available in the district office?

18 Q. No, I mean would someone be there to
19 explain what the document meant?

20 A. Yes.

21 Q. Who would be that person?

22 MR. HYNARD: A. Well, that would
23 normally be the forester responsible for that
24 particular area.

25 Q. And if the unit forester were not

1 there in the office at the time who would answer those
2 questions?

3 A. Well, there is no -- it could be any
4 other staff member. It could be the forest management
5 supervisor, it could be any other member of the staff.

6 Q. Would all the staff members be
7 familiar with the contents of that document? Would
8 they know where it is in the office?

9 A. Yes. Yes, certainly they would know
10 where it is. Certainly they would know how to find the
11 material within it. They may not be personally
12 familiar with each project.

13 I would doubt that would be the case,
14 however, if a party was interested in viewing an annual
15 work schedule and had particular concerns in mind and
16 arranged -- if the MNR knew they were coming into the
17 office, it is no problem to have someone there who can
18 explain every detail that's of interest to them.

19 Q. Okay. Is the annual work schedule in
20 English only; is that fair?

21 A. Yes.

22 Q. Okay. Imagine someone coming in who
23 spoke only Ojibway, would they have an interpreter
24 available or could they make one available?

25 A. I can't speak to that question, not

1 being familiar with that part of the area of the
2 undertaking.

3 Is anyone else on the panel able to
4 answer that?

5 (no response)

6 I am sorry, we can't answer your
7 question.

8 Q. I would like at some point then to
9 get an answer to that. Does the MNR make available
10 interpreters at the office?

11 MR. BUSS: A. I know there are native
12 staff members in the Sioux Lookout District, or at
13 least there were when I worked there a number of years
14 ago. One of our conservation officers was native and
15 one of our senior timber technicians was also native
16 from the Lac Seul Band.

17 Q. Would they speak Ojibway or Oji/Cree?

18 A. Presumably they would, yes.

19 Q. Okay. Well, if I could get some
20 confirmation on that.

21 MS. MURPHY: I am sorry, confirmation
22 on...

23 THE CHAIRMAN: You are talking just about
24 the one office, Sioux Lookout?

25 MS. KLEER: Well, actually I would be

1 interested in any of the district offices where native
2 band members might come in and ask questions.

3 THE CHAIRMAN: I think the question, Ms.
4 Murphy, is whether or not MNR makes arrangements for
5 interpreters in any district office where native band
6 members might be likely to turn up for information.

7 MS. MURPHY: We will provide some
8 response to that, Mr. Chairman.

9 MR. FREIDIN: Mr. Chairman, I might just
10 add, I think it was the same comment that I made in
11 Toronto in relation to questions being put by this
12 party and; that is, these kind of questions, in my
13 respectful submission, if they were important should be
14 asked on interrogatories so we can get the information
15 and deal with the information during the panel's
16 evidence while the panel is here.

17 THE CHAIRMAN: Well, that is the general
18 rule, but there are exceptions to every rule and the
19 Board is not going to exclude a relevant question of
20 this nature just on the basis that it was not included
21 in the interrogatories.

22 It makes it, of course, easier if it were
23 included in the interrogatories for the witness panel
24 to be able to be in a position to provide an answer.

25 MR. FREIDIN: I was not suggesting that

1 the question was improper or should not be asked or
2 answered, Mr. Chairman.

3 MS. KLEER: Q. If I may go on. Where
4 are the notices published regarding availability of the
5 annual work schedule? What -- in general newspapers.
6 Can you give me examples of the newspapers?

7 MR. HYNARD: A. In my own particular
8 case it is the local newspapers.

9 Q. To anyone's knowledge here, have
10 these notices ever been published in the Wawatai
11 Newspaper in the last five years?

12 A. I'm afraid I can't answer that
13 particular question.

14 Q. Okay.

15 A. However, with respect to the
16 preparation of a timber management plan, any native
17 community in or around that particular management unit
18 would receive a notice of the preparation of a plan
19 advising them of their ability to provide input into
20 that plan.

21 If they expressed an interest in any
22 particular operations, for example, when they would be
23 scheduled, then the MNR would provide that notification
24 to that party when the scheduling occurred.

25 So let's say, for example, that a native

1 group as a result of being asked to provide input into
2 a plan had a particular concern with regard to aerial
3 herbicide application in that particular area and asked
4 to be notified prior to that activity, which may not
5 occur for several years, in fact may not occur at all,
6 the MNR would notify them prior to that operation.

7 Q. And if they didn't ask, yet the
8 aerial application were to occur in their area, would
9 the same apply?

10 A. Yes. Using again my own unit as an
11 example, they would then have to rely upon the public
12 notices in the local newspapers.

13 Now, how arrangements are made for other
14 units in other areas where that type of public
15 notification may not be adequate to reach all groups
16 who have an interest and what other measures the MNR
17 undertakes to advise those parties, I don't know, but I
18 will endeavour to find out for you if in fact there are
19 any alterations to the normal public notification
20 process in such areas.

21 Q. In so doing then could you also look
22 at the question of whether or not the practice of
23 putting notices within individual mailboxes within
24 native communities is ever observed?

25 A. Okay. Let me get these questions

1 down straight then.

2 Q. The first is with respect to the
3 annual work schedule, is notice ever given within --
4 actually, is it ever put in individual mailboxes. Does
5 the same apply to the timber management plan notices?
6 And that's all the questions I have on that particular
7 portion of the notice.

8 Going then in the Interrogatory 6 on
9 Panel 13 -- pardon me, sorry, that is Panel 12, we are
10 still dealing with the notices and posting of signs.
11 Where are these signs posted on the site?

12 MR. NICHOLSON: A. The standard practice
13 is to put these large distinctive signs at all known
14 places of particular pedestrian access, major --
15 whether it be a roadway, a boat launching ramp, any
16 place that's known to be accessible, and also around
17 each and every individual spray block if they are also
18 accessible from the ground.

19 Q. When you say it is around each and
20 every spray block, is there a standard as to how many
21 are put up?

22 A. No, just at the points of major
23 access, where people entering the area would be most
24 likely to see them.

25 Q. Okay. Who would identify where those

1 points of access are?

2 A. Probably the project supervisor or
3 those people in the district most familiar with the
4 project and with the general usage patterns and access
5 into the areas.

6 Q. How high off the ground would they be
7 posted, is it --

8 A. Well, within reach because they are
9 all put up by hand, so they are usually with -- breast
10 height, eye height.

11 Q. What language are they written in?

12 A. English and French.

13 Q. And French. I take it those notices
14 are in the form that we saw earlier that was introduced
15 earlier this week, there was a photograph; is that
16 correct?

17 A. Yes, there are distinctive posters.

18 Q. Okay. So they would, I take it,
19 never be written in syllabics, the Oji/Cree...

20 A. Not to my knowledge.

21 Q. Okay. I would like to refer to the
22 policy FRO 040620 which is Exhibit 666. I don't think
23 everyone has it in front of them. I am just going to
24 refer to one portion of that, which is the last
25 paragraph. In that last paragraph it says:

1 "The signs shall remain in place until at
2 least October 1, but must be removed by
3 December 31."

4 I am wondering why that policy was
5 adopted?

6 A. The reason for putting that in there
7 was to ensure that the signs are left up basically for
8 the duration of the growing season, but that they are
9 not left in the forest over winter. And then for
10 people coming back into the area later on, that could
11 generate some confusion as to when this area was
12 treated.

13 Q. Okay. Then I would like to turn to
14 the question of newspaper notices. Again, my question
15 is: Has it ever been published in the Wawatai to
16 anyone's best information at this point?

17 A. I think all we can do is try and find
18 that out for you.

19 Q. Okay, thank you. The answer to the
20 interrogatory indicates that the project description
21 will be available for public inspection. What places
22 would that be available?

23 A. That would be made available at the
24 district office.

25 Q. And, again, my question would be:

1 Have notices of the availability of project
2 descriptions ever been made available to native
3 communities either by giving them to Band council
4 offices or by mailing them or putting them in their
5 mailboxes?

6 A. We will check on that for you.

7 Q. Okay, thank you.

8 MR. GALLOWAY: A. Excuse me, I know of
9 at least one example, just that I am familiar with,
10 where notices were put in the Band offices.

11 Q. Which example is that?

12 A. The Constance Lake Band near Hearst.

13 Q. And do you know what time that was?

14 A. No, it would have been in regard --
15 previous to an aerial spraying project.

16 Q. Okay. In the answer it says that
17 notification letters will be sent to all interested
18 parties and all parties adjacent to or expected to be
19 in the area.

20 Who determines -- well, first of all, who
21 are persons who are expected to be in the area? Who
22 would that cover?

23 MR. NICHOLSON: A. I think all other
24 resource users.

25 Q. So that would include trappers,

1 hunters, berry pickers?

2 MR. GALLOWAY: A. Excuse me.

3 MR. NICHOLSON: A. I am confused here on
4 this. You mean immediately prior to the...

5 Q. To the spray.

6 A. All known users.

7 Q. All known users. I guess what I'm
8 getting at is that I reviewed the transcript earlier
9 with the direct evidence on this panel and someone had
10 said that notices would be given to person who had trap
11 lines, and I'm wondering whether that would be included
12 in the notification letters?

13 MR. GALLOWAY: A. Yes. The list of
14 people for the timber management planning process would
15 include all users or persons likely to be identified or
16 interested in that area and that would include trappers
17 and trapline owners amongst others and they would
18 receive notification in writing about the timber
19 management planning process.

20 Q. Would this include all trappers who
21 have trapping lines within the proposed spray area?

22 A. Yes, any trapline that was within the
23 spray area or close to the spray area would have been
24 identified where possible. It's not always possible to
25 find them all.

1 Q. Okay. That relates to my next
2 question. Does MNR have information on who the
3 trappers are, on who all the trappers are?

4 DR. CAMPBELL: A. If they are part of
5 the registered trap zone system, MNR keeps records and
6 licences are issued and returns are made by trappers.
7 We know if the trapline changes hands or the licence
8 changes from one trapper to another, that record would
9 be kept within the fish and wildlife branch of the
10 district office.

11 Q. And then is it standard policy on
12 every proposed aerial spraying that all of those
13 persons, all of those trappers who are known would in
14 fact be identified by way of notification letter?

15 MR. GALLOWAY: A. I'm not sure if it's
16 standard that they would all get it. In Exhibit 662,
17 that was just entered a moment ago or earlier this
18 afternoon, the notices -- and outlines that notices
19 that would go in there. It was done in most cases, but
20 I don't believe that everyone interested has to be
21 notified in writing previous to that. They would have
22 all received notification. During the timber
23 management planning process, any interested parties in
24 there have to be notified.

25 Q. But the timber management planning

1 process doesn't identify when all the aerial sprayings
2 are going to occur?

3 A. That's correct, wouldn't identify
4 exactly when, it would identify the areas forecast for
5 maintenance within that five-year period, so those
6 areas could be identified. And if there was any value
7 or concern that would also be identified, and then a
8 specific notice or a prescription would be developed
9 for it.

10 Q. But if they did not participate in
11 the timber management planning process for whatever
12 reason, would they be excluded from receiving notice
13 then because they weren't part of that process?

14 A. They wouldn't be excluded on purpose
15 or anything, but that is the reason for the newspaper
16 ads is to include anyone that might have missed or
17 might not have, for whatever reason, identified
18 themselves at the time of the timber management
19 planning process. So we would then notify at -- the
20 annual work schedule is available at April 1st as well
21 as the public notices for the aerial spraying projects.

22 Q. Has there ever been any attempt to go
23 into a spray area where trappers might be if they have
24 some knowledge that there might be trappers in that
25 area?

1 A. Do you mean just prior to the spray?

2 Q. Yes.

3 A. Yes, there in normal practices would
4 be a -- there is the area of control that Mr. Iskra
5 mentioned of the area as well as identification with
6 the signs up prior to the spraying in case someone came
7 in during that and, in most cases, a preflight spray --
8 check of the area for security purposes.

9 Q. You say in most cases. Is that not
10 then the standard practice, or is it just what some
11 people might do?

12 MR. NICHOLSON: A. No, that is standard
13 practice.

14 DR. CAMPBELL: A. I should point out too
15 that during the period that most of this spraying would
16 take place, at least in my understanding of it, there
17 wouldn't be trapping going on. Trapping seasons don't
18 open until only the first part or middle of October or
19 later October in some parts of the undertaking.

20 So unless a trapper was in there and
21 poaching at the time of the year when pelts weren't
22 legal to be trapped, they wouldn't be in the area.

23 Q. Okay. I would like to go back for a
24 moment to the signs themselves. We have all looked --
25 I think we have all seen the signs already and what

1 they contain. I take it they don't contain any
2 information with respect to the fact that there's a
3 policy that says that berries are not to be consumed or
4 should not be consumed in the year of spraying; is that
5 correct?

6 MR. NICHOLSON: A. Yes, that's correct.

7 Q. Do you think that would be an
8 advisable thing to have on a sign?

9 A. I think there's a limited amount of
10 information that you can put on a sign and that is why
11 they are designed so that there is a place for anybody
12 viewing the sign to contact with a person for further
13 information and the follow-up.

14 Q. But on the sign itself there wouldn't
15 any indication to a person reading it that they are
16 eating of the berries might potentially cause some
17 problems for themselves?

18 DR. CAMPBELL: A. I think perhaps I
19 could add something here. The basis on which these
20 herbicides are registered and the use pattern, if we
21 take the Pest Control Products Act, there is a
22 requirement that on the label there would be
23 information identifying any significant hazard to
24 things on or in relation to the control -- to which the
25 control product is intended to be used or public

1 health; plants, animals or the environment.

2 Now, there are not -- the forestry use
3 pattern is on -- is listed on. Glyphosate and 2,4-D,
4 there is not a restriction in terms of precautions that
5 have been added by Health and Welfare from the point of
6 view of eating berries.

7 We put out a policy or rather a directive
8 bulletin of our own simply being on the ultra
9 conservative side saying that we would recommend that
10 people not eat the berries in the year in which an area
11 is sprayed. There is no indication that there is a
12 human health risk.

13 We are getting -- our primary purpose
14 here was to give people the option of choosing whether
15 they would like to pick berries in the area or not.

16 Q. Well, if you have given them that
17 option in a policy, why would it not make sense to give
18 them that option by having it right in front of them on
19 a sign before they go and pick berries?

20 A. Well, we are assuming that if someone
21 is concerned they will -- they know that the area is
22 being sprayed, if they are concerned about whether they
23 can or cannot eat the berries they will ask about it.
24 There is a name of a contact person to contact. As Mr.
25 Nicholson pointed out, you have a sign, there is a

1 limited amount of information that you can put on that
2 sign.

3 Q. Well, it would seem to me that to add
4 one sentence about caution with respect to consumption
5 of berries is advised might not be too much to add on
6 to a sign.

7 A. Well, as we say, our position is not
8 that there is a hazard, it is simply a question of if a
9 person does not want to eat the berries they don't have
10 to.

11 Q. Well, I'm going to get a few more
12 questions on the question of berry consumption and I
13 will try and deal with them at this point.

14 I would like to refer to Interrogatory 7
15 on panel 12 which is part of Exhibit 663, and there is
16 a policy that we have been talking about attached to
17 the second page of that answer.

18 Now, this policy indicates that -- well,
19 I won't say what it indicates, I'm going to ask what
20 you think it indicates. I would like to refer also to
21 Item D in our answer to Interrogatory 7 on Panel 12.
22 It says that:

23 "The Ministry takes the following
24 precautions to reduce human exposure.
25 One of them being recommendation that

1 berries not be consumed in the year of
2 spraying from areas which have been
3 sprayed with herbicides other than
4 2,4-D."

5 Well, that appears to be a recommendation
6 by the Ministry. Is it MNR's position that berries
7 sprayed with 2,4-D can be eaten safely in the year of
8 spraying?

9 A. Yes, that is correct.

10 Q. So if someone asked you upon reading
11 one of these signs that it was safe for them to eat the
12 berries with 2,4-D, you would tell them that was so?

13 A. Yes, but I would still recommend that
14 they not do it because 2,4-D has a rather strong odor
15 and the berries would probably have an unpleasant
16 taste.

17 Q. Okay. Paragraph 2 of the policy on
18 the collection of berries says that:

19 "Health and Welfare Canada has stated
20 that berries which have been sprayed with
21 2,4-D during conifer release or site
22 preparation projects may be eaten safely
23 even immediately after the spraying."

24 So MNR agrees with that statement of
25 Health and Welfare?

1 A. As I say, we do not make the
2 decisions as to what is safe from a human health basis.
3 We rely on the regulatory process. Health and Welfare
4 has indicated this, we accept their opinion.

5 Q. Okay. Would you agree then that
6 there is some controversy in the scientific community
7 as to the human health effects of 2,4-D and I would
8 like to take you briefly to page 53 of Document 4 on
9 Panel 13 which is the ESSA study and I'm just going to
10 read --

11 THE CHAIRMAN: Ms. Kleer, are we going to
12 be getting into the area of human health effects from
13 the use of pesticides, because if we are, we are going
14 to deal with this specifically as a unit presumably in
15 August when Dr. Kingsbury and Mr. Ritter are going to
16 be here.

17 MS. KLEER: I'm not going to get
18 specifically into the human health effects in any
19 degree. I just have one more question.

20 THE CHAIRMAN: Okay.

21 MS. KLEER: Q. Okay. I would like to
22 refer just briefly to an article that is referred to on
23 53 of the ESSA Document that says that:

24 "Sassman, et al noted that although there
25 is no conclusive data demonstrating the

1 carcinogenicity of 2,4-D there is
2 evidence that 2,4-D is potentially
3 teratogenic and that several studies of
4 lab animals ingesting high concentrations
5 of 2,4-D have disclosed embrotoxic and
6 fetotoxic properties."

7 First of all, would you agree with my
8 statement that there is controversy whether, apart from
9 what you might or what MNR's position is with respect
10 to that controversy, but that there is controversy on
11 the human health effects of 2,4-D?

12 DR. CAMPBELL: A. There is always
13 controversy in the scientific community. The thing I
14 should point out is that as they go on further in that
15 particular paragraph to point out the -- the Ontario
16 government commissioned an expert panel to look at
17 2,4-D and they came to the conclusion that 2,4-D did
18 not represent a human health hazard.

19 Q. I recognize that, but I would like to
20 get a statement from you. You have already agreed with
21 me then that there is scientific controversy and you
22 also agree that Ontario has its own position with
23 respect to that scientific controversy?

24 THE CHAIRMAN: Well, I'm not sure that
25 Dr. Campbell has agreed that there is controversy

1 necessarily with respect to this other than the fact
2 that there is controversy in almost any scientific
3 discipline in terms of these kind of things.

4 DR. CAMPBELL: Well, that's correct.
5 There is controversy on anything and basically what you
6 have to do is go on the weighted evidence and that is
7 in fact what the expert panel did, they weighed all of
8 the evidence and they came to the conclusion that there
9 was not a significant human health hazard.

10 THE CHAIRMAN: Would you expect, Dr.
11 Campbell, with any of the pesticides or herbicides used
12 by MNR or other agencies within Ontario, that there
13 would be unanimity of opinion, of scientific opinion
14 with respect to each of them?

15 DR. CAMPBELL: With respect to which?

16 THE CHAIRMAN: Any of them.

17 DR. CAMPBELL: No.

18 THE CHAIRMAN: So to that extent you
19 could say there is controversy in the sense that there
20 wouldn't be one hundred per cent scientific unanimity
21 of opinion with respect to any particular herbicide or
22 pesticide?

23 MR. CAMPBELL: That's correct.

24 MS. KLEER: Q. Okay. Would you agree
25 with me as well that Ontario is making some sort of

1 risk assessment when they come down with their position
2 that the existing animals and humans that are
3 insufficient to support findings that 2,4-D is a
4 carcinogen?

5 DR. CAMPBELL: A. Repeat that again,
6 please?

7 THE CHAIRMAN: Ms. Kleer, I think we are
8 really getting into the whole discussion on the human
9 health effects of pesticides and herbicides and I
10 think, to the extent that MNR is going to call evidence
11 on this of their own, and to the extent that other
12 parties can cross-examine on that evidence, and further
13 to the extent that any other party wishes to call
14 evidence on that pursuant to the Board's ruling, we
15 should leave it until the appropriate time and just
16 deal with essentially the evidence-in-chief this panel
17 has dealt with.

18 MS. KLEER: Okay. I will take your
19 suggestion.

20 Q. I'm going to press a little bit
21 further on Interrogatory 6, Panel 12 -- or, sorry,
22 Panel 13. In the answer to the question it says:

23 "We have no information that suggests
24 particular risks to persons harvesting
25 food in or near maintenance activities."

1 I guess perhaps my question may be, once
2 again, put off to a later point. I was just going to
3 ask: Why would MNR make a decision not to monitor in
4 light of some scientific disagreement over the effects
5 of 2,4-D and we'll leave that for a later time.

6 THE CHAIRMAN: Again, I think we will
7 wait until the appropriate time for that.

8 MS. KLEER: Okay.

9 Q. All right. Then, let's turn back to
10 the policy on the collection of berries which is in
11 Exhibit 663.

12 Can someone tell me: Is this policy
13 limited to the following herbicides 2,4-D, Velpar which
14 I guess is hexazinone, roundup also known as glyphosate
15 and garlon?

16 DR. CAMPBELL: A. These are the only
17 herbicides we were expecting to be used in the --
18 really in the area where there is going to be
19 significant berries.

20 Q. Okay. I just had one question about
21 that. Velpar, which is hexazinone, when I reviewed the
22 witness statements seems to be only registered for
23 ground application; is that correct?

24 A. Yes, that's correct.

25 Q. Okay.

1 A. In fact garlon at the present time is
2 not registered, but this was referring to the
3 possibility of these being used in the experimental
4 applications which would also be posted as well.

5 Q. Okay. I guess my question related to
6 simazine because simazine, as I understand it, can also
7 been sprayed behind a sprayer, it's not used aerially
8 but it is used when attached to a sprayer; is that
9 correct?

10 A. Well, I think perhaps unfortunately
11 you weren't here for the direct evidence, but the
12 simazine would be used only on old field type of
13 situations. If you had any of the berries be it
14 raspberries blueberries or pin cherries on the site to
15 a significant extent you would not be using simazine
16 for weed control.

17 Q. Okay. I would like to turn briefly
18 to Panel 13, Interrogatory 4, which is the first
19 interrogatory and that is Exhibit 664. The last
20 paragraph on the first page says that:

21 "Because some insecticides are not
22 registered on, for example, raspberries
23 we suggest that food not be consumed from
24 areas treated with chemical insecticides
25 in the year of application."

1 I haven't seen anywhere a policy similar
2 to that for collection of berries from areas sprayed
3 with herbicides. Is there such a written policy of the
4 MNR with respect to insecticides as opposed to
5 herbicides?

6 A. No, we do not at the present time. I
7 would anticipate that we will in the future.

8 Q. Is anything in the works at present?

9 A. To the best of my knowledge, no.
10 Again, I should perhaps point out here that we again
11 are relying on the fact that the registration process
12 does require that restrictions be put on the label if
13 there are concerns, you know, for human health
14 situations. I actually -- I answered this particular
15 interrogatory. That is simply my suggestion.

16 MR. CHURCHER: A. To look at it from a
17 practical point of view, it would be rare -- the case
18 would be very rare that we would be spraying
19 insecticides in an area where there was raspberries,
20 for instance, growing. Insecticides tend to be used in
21 more mature forests where you do not have blueberries
22 or raspberries growing. We are not -- tend not to be
23 spraying cut-over areas as is the case with herbicide
24 use.

25 Q. But occasionally you do spray

1 cut-over areas with insecticides?

2 A. Never say never. I can think of
3 examples where you may require spraying insecticides.
4 Again, it would be rare.

5 Q. Sorry. Dr. Campbell, I'm interested
6 in why you suggested that food not be consumed from
7 areas treated with chemical insecticides in the year of
8 application?

9 DR. CAMPBELL: A. Again, it's the same
10 situation as I mentioned in the previous one, we're
11 being ultra conservative.

12 Q. Okay. And it would be then for human
13 health -- possible human health reasons, or am I once
14 again straying?

15 A. Well, I think there is also the
16 possibility of bad taste there.

17 Q. But would you agree that human health
18 might be part of your considerations?

19 A. Yes.

20 Q. Thank you. On Panel 13 in the
21 witness statement at page 174, there is a policy which
22 I would like to refer to briefly.

23 MR. FREIDIN: Which panel?

24 MS. KLEER: Panel 13, page 174.

25 I'm sorry to take everyone around, but this is all

1 related to the berry consumption issue, so...

2 Q. At page 174, this is the policy on
3 aerial application of herbicides -- or sorry, of
4 insecticides, it says:

5 "This policy should not be interpreted as
6 promoting the wide-scale use of
7 insecticides. Where alternatives to
8 chemical insecticides are commercially
9 available, reasonably cost effective and
10 approved federally and provincially for
11 use, the Ministry will use such
12 alternatives in preference to chemical
13 insecticides."

14 Why has MNR adopted this policy and I
15 direct this to whoever? Is there any relationship
16 between this policy and concerns over chronic or
17 long-term human health effects of chemical pesticides?

18 MR. CHURCHER: A. While I was not
19 working with the Ministry at the time that this policy
20 came into being in 1980, my understanding of why it
21 came into being was a recognition of the fact that
22 there were now new products coming on the market, there
23 were -- more biological insecticides were becoming
24 available and being tested and being approved for use.

25 At the same time there was increasing

1 concern on the part of the public about the use of
2 chemical insecticides for environmental reasons, if you
3 will - using the broad term of environment as is
4 defined in the Environmental Assessment Act - and,
5 therefore, the recognition was that when appropriate,
6 when given a choice, when biologicals are equally as
7 cost effective and they are available and they are
8 registered, that if possible, then the biological
9 should be used in preference to the chemical.

10 THE CHAIRMAN: Would not this policy in
11 any event be superseded by the Minister's decisions
12 with respect to spraying insecticides in any event?

13 MR. CHURCHER: Yes, it would.

14 THE CHAIRMAN: So you can't use
15 chemicals, you have to use BTs?

16 MR. CHURCHER: Yes, when the Minister
17 makes that decision.

18 THE CHAIRMAN: So there isn't this choice
19 expressed in this in any event at this point in time?

20 MR. CHURCHER: Thinking back to our
21 discussions of yesterday, yes, I would have to agree
22 with that statement.

23 THE CHAIRMAN: And when there is - and
24 just for the purposes of this question, when there is a
25 change in policy, and assume that the Minister's

1 determination of this matter is a policy just for the
2 purposes of this discussion - when there is a change in
3 policy that supersedes part of another policy, a
4 previous policy, does the rest of the policy survive in
5 tact?

6 In other words -- perhaps, Mr. Freidin,
7 this is somewhat of a legal question; is it severable,
8 or Ms. Murphy, or does the whole policy fail? I think
9 you know what I'm getting at. You know, is this 1980
10 policy completely superseded by the Minister's
11 determination of the issue?

12 MS. MURPHY: Can I think about that one
13 and respond later, Mr. Chairman.

14 THE CHAIRMAN: Okay.

15 MS. CRONK: I'm sorry, Mr. Chairman, I
16 don't mean to cause difficulties for my friend but I
17 was reflecting myself on that exchange.

18 Are we then to get an opinion from Mr.
19 Freidin and Ms. Murphy, which I'm always delighted to
20 get, about this matter, or are we going to get evidence
21 as to -- you understand the problem.

22 THE CHAIRMAN: No, this would certainly,
23 you know, be the subject of argument at the appropriate
24 time. I think what the Board was just trying to
25 ascertain at this point in time is: What is the

1 Ministry's understanding of a situation where a
2 subsequent policy seems to materially affect a previous
3 policy; what in effect is the status of the previous
4 policy, at least to the parts that remain or apparently
5 remain unaffected.

6 MS. CRONK: Could we determine now if any
7 of the present witnesses have any understanding of that
8 issue. If they don't, of course, they are free to
9 indicate they don't.

10 MR. CHURCHER: Well, as the Ministry's
11 expert in the use of insecticides I guess it falls to
12 me to answer that question. And, as far as I'm
13 concerned and my interpretation of the question, that
14 the Minister's decision or the new policy would affect
15 only that portion of this policy, if you will, being
16 that one particular paragraph.

17 THE CHAIRMAN: And that everything else
18 should remain in tact?

19 MR. CHURCHER: Everything else that is
20 there that talks about three levels of insect control
21 and continued research and development or anything else
22 that is stated there would not be affected.

23 THE CHAIRMAN: Thank you.

24 MR. CHURCHER: From a practical
25 practising point of view that is my interpretation.

1 MR. FREIDIN: Mr. Chairman, I assume that
2 negates the necessity for Ms. Murphy or I to respond to
3 the earlier discussion?

4 THE CHAIRMAN: Yes.

5 MR. FREIDIN: Thank you.

6 THE CHAIRMAN: Subject to it being
7 revisited at a later stage by any other of the other
8 parties.

9 MR. FREIDIN: I will make special note of
10 that, Mr. Chairman.

11 THE CHAIRMAN: Sorry, Ms. Kleer.

12 MS. KLEER: That's all right.

13 Q. Within any of the notices that
14 pertain to proposed pesticide applications is there or
15 would -- sorry, is there ever a statement made that
16 persons can identify at that time their potable water
17 supplies, their berry-picking areas, or other areas
18 that they would want to have protected from an aerial
19 spray program? Has that ever been part of the notice?

20 MR. NICHOLSON: A. Well, when project
21 description -- when the plans are put together, the
22 project description, as we refer to it as, the local
23 people in the office would identify to the best of
24 their knowledge all of those known concerns such as
25 potable water supplies, et cetera.

1 Then by contacting all known users during
2 the review period there would be the opportunity to
3 confirm the existence of those locations and, more
4 importantly, add any new ones to the plan.

5 MR. CHURCHER: A. For clarification, the
6 wording of the notice is very specific and you can find
7 that wording on page 160 of Panel 13 evidence, and I
8 can read it for you if you like, or we can turn to it
9 now.

10 Q. No, you can read it for me. I have
11 got it.

12 A. Page 160 about two thirds of the way
13 down.

14 Q. Okay.

15 "As part of the Ministry of Natural
16 Resources on-going program to regenerate
17 and protect our forests, select forest
18 stands in this area will be sprayed with
19 Insecticide to control (name of insect)
20 starting on or about (date) and further
21 details about the program, including
22 specific locations are available from
23 your district office of the Ministry of
24 Natural Resources."

25 A. And you provide the address and phone

1 number of the district office.

2 The same notice would be applicable for
3 herbicides and it is found later on - I don't have the
4 precise page - but instead obviously instead of the
5 insecticide, it talks about herbicide, instead of the
6 name of the insect it gives the reasons, either site
7 preparation or tending.

8 Q. So that notice is used universally?

9 A. Yes.

10 Q. Okay.

11 A. Yes, it is. It is part of the
12 procedure, that is the standard wording that is used
13 across the province.

14 MR. GALLOWAY: A. Also, with the potable
15 water would be within the TMP process where that value
16 would be identified and listed as a value, and any
17 prescription that that might require would be developed
18 at that time.

19 Q. But you would agree with me that the
20 notice that describes persons' opportunities to
21 participate in the process doesn't say you may identify
22 areas of concern including potable water supplies, et
23 cetera?

24 A. It is not that specific, that's
25 correct, but it does -- and in that case, the persons

1 in the area would get a specific letter and that would
2 outline when and where and when it was going to be
3 presented and what their rights were within that
4 presentation.

5 Q. But would the specific letter say
6 that areas of concern, such as potable water supplies,
7 berry-picking areas could be identified at this time?

8 A. No, it probably would not have those
9 examples listed.

10 Q. Okay. Would that, in your opinion,
11 be a useful thing to include so as to encourage
12 peoples' participation and specifically native persons'
13 participation?

14 A. It certainly could be highlighted in
15 context with them, but the list of values created is
16 quite long and you couldn't -- just physically to list
17 them all in those notices or letters probably would
18 negate that value as opposed to the concept of -- when
19 you direct contract those interests -- or contact those
20 interested groups, to highlight the most probable areas
21 of their concern.

22 Q. Would it be reasonable to include
23 that you may identify areas of concern in the course of
24 the timber management planning process and limit it to
25 that as part of the notice?

1 A. Yes, and letters have gone out to
2 that effect in cases that I know where it says
3 identification of values, and that's also identified on
4 the -- actually on the map and the people at those open
5 houses are to identify that to people and request view
6 of it and input.

7 MR. ISKRA: A. Ms. Kleer, if I might be
8 able to help with something here. While we are on page
9 160, over on 161, section 31, toward the bottom, it's
10 the MNR's policy and procedure on communications and a
11 corresponding procedure for herbicide application as
12 well as insecticide.

13 And this notification we talk here about
14 consideration should be given to additional public
15 notification of individuals who are located within one
16 kilometre of the proposed spray blocks, and this
17 notification should be in the formal letter advising.

18 In addition to your earlier concerns
19 about persons being on the block, on page 162, section
20 30.4, under Project Security Plan, the bottom last line
21 of that first paragraph:

22 "While spraying is in progress the spray
23 blocks must be closed to the public."

24 Q. I recognize that. Thank you for
25 pointing that out. I would just like to go briefly to

1 that communications plan that you referred to on page
2 161. I am going to press the point again.

3 In those letters that go out, just with
4 respect to the spraying operations rather than the
5 timber management planning process, do those letters
6 ever say you - and I am going to deal specifically with
7 native communities - do those letters ever say: At
8 this time you may identify your potable water supplies,
9 the areas in which you pick berries, et cetera?

10 A. No. An example of one of those
11 letters is in my section of the evidence and it really
12 identifies what the spray blocks are. And I guess from
13 my point of view I would feel that if somebody had
14 concerns about those spray blocks that in fact they
15 would contact us. And I think that's really the intent
16 of that letter.

17 Q. All I am suggesting is that a more
18 specific notification might encourage people to come
19 forward and recognize that their actual concerns --
20 that they have specific concerns that they may address
21 at this time. That's all I am trying to suggest.

22 A. Okay, that's a fair suggestion.

23 MR. HYNARD: A. Well, Ms. Kleer, at the
24 time of the notification of the preparation of the
25 timber management plan we bend over backwards to

1 contact every party with an interest, including
2 individuals, that we can think of using people that are
3 familiar with that area who work for us.

4 We contact them, our notices say that we
5 are looking specifically for their area of interest,
6 for them to identify areas of Crown land that they use
7 or know of a value, to identify that particular value
8 and make it known to us.

9 We notify them, we advise them of their
10 rights of public input, the four stages of input
11 opportunity that they have and when they will occur and
12 what the next stage will be in case they are still
13 dissatisfied. All of that information is contained
14 within notices. It doesn't list potable water supplies
15 for the reasons that Rob said, I mean the list would go
16 on for four pages and people would stop reading, of
17 every possible value that we could identify.

18 Now, after the timber management plan has
19 been prepared and those values have been identified and
20 the planning team has taken that into account in
21 developing their prescriptions - and sometimes it may
22 be that they do not accept a value that's offered
23 during that public input stage, that's possible - but,
24 at any rate, after the plan has been approved, then
25 there is a notification of areas that are going to be

1 sprayed in that particular year.

2 The purpose at this time is different, it
3 is not to identify all possible values and get all
4 possible input, it is to advise people that these spray
5 operations are going to occur, and if they don't want
6 to go into an area that's just been sprayed, they don't
7 have to. That's why the notices are in the paper and
8 the notices are posted on the site and that's why the
9 area is sealed off, for those reasons.

10 Q. Right. I will deal with one point
11 you raised at a later point when I look at the
12 complaints -- the documented complaints. Let's deal
13 with the issue of water consumption now and I would
14 like to turn to Panel 13 Interrogatory 5, and that's
15 Exhibit 664, I believe so. Okay. In the fourth
16 paragraph in the answer it says that:

17 "Known water supplies for communities are
18 treated as an area of concern."

19 Is that a universal policy, are all known
20 water supplies to be treated as areas of concern? I
21 don't know, Mr. Iskra, would that be a question that
22 you would be...

23 MR. GALLOWAY: A. I can answer that.
24 Yes, all known water supplies would be treated as an
25 area of concern.

1 Q. Okay. Could you identify for me what
2 is encompassed by known water supplies? What are you
3 referring to exactly?

4 A. It would include any area identified
5 by an interested person or party in there. It would
6 include anything identifiable by MNR staff as well,
7 lakes, creeks, et cetera, like that, and they would all
8 be identified as an area of concern.

9 MR. CHURCHER: A. Again, to go back to
10 Volume I of Panel 13 on page 166, the guidelines for
11 applying buffer zones identifies what is a significant
12 area and what is a sensitive area.

13 Q. Mm-hmm:

14 A. A significant area is a named or
15 numbered lake, river and streams as gazetted, or those
16 waters identified as locally significant. And, as Mr.
17 Galloway has said, I believe that that would fall under
18 that category.

19 Q. Okay. Does MNR have a listing
20 anywhere of the water supplies of all the native
21 communities within the area of the undertaking, of all
22 the NAN communities within the area of the undertaking?

23 MR. GALLOWAY: A. No, I would say we
24 didn't have -- we don't have that exact type list.

25 Q. Is MNR aware of any of the

1 communities, any of the NAN communities which get their
2 known water supplies from a surface source?

3 A. I can only -- in that instance I can
4 only speak of one situation that I know which is the
5 Abitibi -- south of Lake Abitibi area east of Matheson
6 and, in that area, the potable water supply was
7 identified as a concern to us by the Band and that
8 concern was reviewed and in fact it came from a
9 different area than we had identified that we would be
10 spraying. That was explained to the Band and then that
11 resolved that issue.

12 So in that case then, from there on, that
13 would be definitely listed as a value. Whether -- I
14 believe we knew that that was a value and would have
15 been treated as an area of concern, perhaps not as the
16 water supply issue but as an area of concern identified
17 by us.

18 MS. MURPHY: Just for assistance for the
19 record, it might be pointed out that we now have a
20 list - my friend is referring to generically the NAN
21 communities - I would just point out that we now have a
22 list on Exhibit 664, the last page, in which the
23 communities are listed. It might be easier to follow
24 what communities we are discussing.

25 MS. KLEER: Q. So is it fair to say then

1 that unless a NAN community identifies a known water
2 supply or unless somebody in the MNR office happens to
3 know about a known water supply, known water
4 supplies -- or, sorry, other water supplies that are
5 not known would not be protected from an aerial
6 spraying project. Is that fair to say? Is that
7 possible?

8 MR. GALLOWAY: A. That's possible, and
9 that type of identification of something we don't know
10 about in the area is why we go to all the effort of
11 finding out those things, to minimize that.

12 Q. Okay.

13 MR. NICHOLSON: A. If I may add
14 something along that. Even in the identification of
15 those areas pertaining to buffer zones, as Mr. Churcher
16 commented on page 353, areas identified as locally
17 significant, when we sat down with the Ministry of the
18 Environment to establish these mutually acceptable
19 buffer zones one of the items that we did discuss was
20 communal and municipal water supplies which we have
21 even identified at the outset in terms of we may
22 increase these buffer zones.

23 In other words, these provided here would
24 be minimums in specific situations like that. I mean,
25 a municipal or a communal water supply, we would

1 discuss -- we would look at that and consider
2 increasing those buffer zones if the situation
3 warranted it.

4 Q.. Okay.

5 THE CHAIRMAN: Ms. Kleer, flipping around
6 your question, have any of the native communities, to
7 your knowledge, ever provided a list to MNR of their
8 known water supplies?

9 MS. KLEER: I am not in a position to
10 give an answer to that question.

11 THE CHAIRMAN: It seems to the Board that
12 it is a difficult problem. MNR may go out and try and
13 seek knowledge about this by publishing notices; on the
14 other hand, native communities may, for whatever
15 reason, not communicate this knowledge and somewhere
16 between the two positions something falls through the
17 crack and there is a water supply out there that is
18 used that nobody knows about. Each of the two groups
19 know about it, but there is no transfer of information.

20 MS. KLEER: Well, that's partially why I
21 am trying to get at the issue of notice and specifying
22 notice so that more -- it is more likely that that
23 information would come out.

24 THE CHAIRMAN: But a possible solution
25 might be for the native communities themselves to

1 provide a list to MNR of their particular known water
2 supplies and then there wouldn't be any doubt that MNR
3 has that knowledge as a generic type of thing, not in
4 response to a particular application for spraying, but
5 as a -- sort of a list that might be updated on a
6 yearly basis or something like that.

7 MR. HYNARD: Mr. Chairman, that
8 information is sought. In each TPM preparation every
9 native community in or around that management unit
10 would be contacted and asked to identify their
11 concerns. So there is no doubt that they would receive
12 a notice that we are preparing a plan, we want to know
13 about their interests, we want them to identify values
14 and to participate in that plan.

15 MS. KLEER: Q. Okay. When you say --

16 MR. HYNARD: A. There is no doubt they
17 receive that notice.

18 Q. When you say the Band receives the
19 notice, specifically who gets that notice?

20 A. Well, we have a policy on it. It is
21 mandatory for the unit forester preparing that plan to
22 send a notice to the Band.

23 Now, my own was sent to the
24 secretary/treasurer of the Curve Lake Band. I called
25 them, I said: Where do you want it sent. He said:

1 Send it to me, I am the secretary/treasurer. I don't
2 know in each case, but we send it to the Band. Which
3 particular -- whether it is the Band leader or not I
4 can't tell you.

5 THE CHAIRMAN: Mr. Freidin?

6 MR. FREIDIN: Mr. Chairman, Ms. Kleer is
7 here, I can go on record on behalf of the Ministry of
8 Natural Resources that if the client -- her client
9 wishes to advise the Ministry of the water supplies in
10 which they have concern, the Ministry of Natural
11 Resources would be pleased to receive that information.

12 I think if this hearing can have a
13 beneficial effect it may be that communication of that
14 sort if received would be helpful.

15 THE CHAIRMAN: Well, it just seems to the
16 Board that not only on this issue but in other issues
17 the appropriate degree of protection for parties
18 involved in terms of areas of concern to them is based
19 on a transfer of information, and it is difficult if
20 the parties who are responsible for the activity don't
21 have the appropriate information.

22 And it would seem to be reasonable that
23 in order for that information transfer to take place
24 that the parties who would be impacted - I'm not
25 suggesting necessarily be under an obligation to

1 provide that information - but it would certainly be in
2 their best interest to provide that information so that
3 their concerns could in fact be taken into account and
4 not dealt with if, on a particular ad hoc basis,
5 information were provided, for instance, in advance of
6 a particular spraying program.

7 MS. KLEER: Well, we will try and address
8 that at some time and we may address it in our direct
9 evidence.

10 THE CHAIRMAN: Very well.

11 MS. KLEER: Q. I would like to just
12 deal with the question of buffer zones. We were
13 looking at page 166 on Panel 13, or some of us were at
14 any rate, and they have different buffer zones for
15 significant areas, meaning those waters identified --
16 or including those waters identified as locally
17 significant as compared to sensitive areas.

18 My first question is: How were all of
19 these buffer zones arrived at? What was the process?
20 What considerations went into that designation of
21 buffer zones?

22 MR. NICHOLSON: A. Well, these buffer
23 zones were established in concert with Ministry of
24 Environment, there was a technical specialist from
25 Natural Resources and Ministry of the Environment;

1 pesticides officers, and we looked at the body of
2 information that was available, presented to the
3 Ministry of the Environment the sort of scenarios in
4 which we would be doing our work and our abilities in
5 terms of technical abilities when we are spraying and
6 asked them to provide us with what we felt were
7 reasonable guidelines to establish these buffer zones.

8 Q. So it was based in part upon a review
9 of scientific literature; is that...

10 A. Yes, but you will find that, with the
11 exception of the one document which has already been
12 considered, there is not a lot of scientific
13 information available on buffer zones per se, and the
14 best document would be the Trial Kingsbury publication.

15 Q. How was the difference arrived at as
16 between significant areas and sensitive areas?

17 One is for herbicides, we note that it is
18 60 for significant areas and 120 metres for sensitive
19 areas, and for other than herbicides, which I presume
20 means aminocarb -- well, it's aminocarb, fenitrothion
21 and carbaryl it is 120 metres and 240 metres
22 respectively.

23 A. You are asking how we came up with
24 the numerical difference between--

25 Q. Yes.

1 A. --the 60, 120?

2 Q. And why would there be a difference?

3 Why would you make a difference between significant
4 areas and sensitive areas? Is that a policy decision
5 or is that...

6 A. Well, I guess part of it would be a
7 definition of a significant area. In terms of doing
8 the spraying, there is lots of areas that are covered
9 obviously and we are concerned about those areas that
10 were easily identifiable, temporal waterbodies such as
11 spring runoff, these sorts of things which may or may
12 not be there during a period of application such as on
13 areas that may be wetlands in the spring would not
14 necessarily be the same in the summer during a
15 herbicide program.

16 So we tried to come up with something
17 that would give us some credible way of establishing
18 these areas. So we looked at all of these areas that
19 were named or numbered lakes, considered them as
20 significant. We went to something that would be
21 legally significant; in other words, named and
22 gazetted, in other words on the record, and then we put
23 also on that those waters identified as locally
24 significant, maybe not showing up on maps or records,
25 but that local information -- that people in the local

1 office would know, such as perhaps potable water
2 supplies, would be considered in that.

3 Then we looked at areas that were, as we
4 considered them, sensitive basically for fish and
5 wildlife concerns or patented land, private land. We
6 felt that those areas were much more critical in terms
7 of maintaining the integrity of those areas and were
8 worthy of a wider buffer zone.

9 And then going finally to human
10 habitation as defined here, permanent and/or occupied
11 homes, cottages, logging camps and development areas or
12 campgrounds in provincial parks. We felt that those
13 were the places where there would be the greatest
14 opportunity for exposure and, consequently, looked at
15 the significance of that and established buffer zones
16 accordingly.

17 Q. On the question of what constitutes a
18 home, does this -- it doesn't specifically include
19 trappers' cabins. Would that be a part of the list?

20 A. Trappers' cabins per se were one of
21 the items that were discussed, but the consensus on
22 that was that these cabins would not be occupied during
23 the period of application and that there can be so many
24 of these trapper cabins in the area of the undertaking
25 that it could effectively reduce significantly or have

1 a negative impact on the operations.

2 Q. What about tents, occupied tents;
3 would that be included?

4 A. Well, if that tent is considered as a
5 home, a home that --

6 Q. That's what I am asking; is it a
7 home?

8 A. To my definition, if somebody is
9 living in a tent year round that would be a home.

10 Q. Is MNR's definition your definition?

11 A. With respect to that as being a
12 non-seasonal dwelling, I think we are comparable.

13 Q. Okay. So that was my next question.
14 For seasonal residences, is that included here, a
15 seasonal home?

16 A. Yes, seasonal such as camps and
17 cottages, yes.

18 MR. CHURCHER: A. Especially if they
19 were occupied at the time of the spray program. I
20 believe that's why it says: "Permanent and/or
21 occupied: Home..." et cetera, et cetera, et cetera.

22 It may not be the permanent habitation --
23 someone's summer cottage may not be their permanent
24 habitation, but if it is occupied at the time that the
25 spray program is going to be proposed, then obviously

1 we would put a spray boundary around that.

2 Q. Then I would assume then that you
3 would have -- that MNR has a way of determining what
4 homes are going to be occupied at the time of the
5 spraying? Is that by means of all the notification
6 processes that you have been talking about?

7 A. Yes, local knowledge that would be
8 available at district offices. Yes, many of the things
9 we have talked about already this afternoon.

10 MR. ISKRA: A. Ms. Kleer, in my
11 statement of evidence, which is Volume II, Panel 13 on
12 page 572, there is an example of a map of a budworm
13 spray block and in the key is a list of some of the
14 items that are in that -- around those specific blocks
15 for values. That's page 572 and on there I notice
16 there are two trappers' cabin. So that's sort of an
17 example of how we would do this operationally.

18 Q. I want to clarify. It says logging
19 camps here. Does it also include hunting camps as part
20 of human habitation, or would that fit within --

21 MR. NICHOLSON: A. Anything that would
22 be occupied during the period of application would have
23 been considered.

24 Again, a hunt camp used in the fall would
25 be vacant from spring until after frost which is when

1 most of these activities occur. Now, if that hunt camp
2 was on private land, we would use the criteria in terms
3 of buffer zones.

4 THE CHAIRMAN: Ms. Kleer, would you find
5 a convenient spot for a break for about 15 minutes?

6 MS. KLEER: Okay. I just have one more
7 question on the buffer zones here.

8 Q. Under what circumstances would a
9 buffer zone be reduced? I read in the human habitation
10 section that:

11 "Reduction of buffer zones may be
12 considered with written notification to
13 the owner."

14 How does that process work? Do you just
15 give written notice and then tell them that you are
16 going to reduce the buffer zone, or how does that work?

17 MR. NICHOLSON: A. No, it is a dialogue
18 process. We would explain the reasons why in which
19 we -- why we wish to perhaps reduce that buffer zone,
20 explain the values that we were trying to protect and
21 consult with that property owner and see if there was
22 some leverage available there. If there was a great
23 concern about it, we would maintain them as minimums or
24 perhaps increase them.

25 Q. How frequently does this kind of

1 consideration of reduction of buffer zones occur? Is
2 that a standard? Does that happen quite frequently, or
3 very rarely, or somewhere inbetween?

4 MR. HYNARD: A. It happened to me just
5 last year and that case was private land. We had a
6 poplar clearcut which extended right up to the boundary
7 between the Crown and private land. It's private land
8 zoned rural, it's unoccupied, there is no habitation on
9 it.

10 We were proposing to apply herbicide and
11 then burn the area prior to planting, and I conducted
12 the owner, his name is Don Fynn, explained our
13 proposals to him and discussed it with him. He stated
14 that he had no objection to us doing so and we are
15 proceeding with that. It is now going into the timber
16 management plan. So it does happen. That doesn't tell
17 you how frequently it happens, but it does happen.

18 MR. ISKRA: A. In our proposal for this
19 year for our herbicide operation in Dryden there is one
20 160 acre block of private land. At this time we are
21 unable to notify the owner. We sent a letter, it is
22 not in the province, the home address, and because we
23 haven't got a response we are not going to touch the
24 buffer zone, it is going to stay at the maximum.

25 MR. MARTEL: Could I ask a question?

1 What if the owner didn't agree with you, Mr. Hynard;
2 what would you do then? Where would you take it?

3 MR. HYNARD: Well, actually that one may
4 end up that way because what he did is he offered to
5 sell us his lot afterwards and when we turned him down
6 he was mad and -- yes, he is a lawyer, Don Fynn is a
7 lawyer.

8 MR. MARTEL: That's really bad.

9 MR. HYNARD: Small town, he is my lawyer,
10 so...

11 THE CHAIRMAN: It could be real bad for
12 you actually.

13 MR. HYNARD: If the owner objected we
14 would then look at our alternatives: Can the area be
15 treat mechanically, for example, is it possible to do
16 that, is a ground application possible?

17 Not only are we proposing in this case to
18 spray up to the boundary, but to burn up to the
19 boundary. We would look at the values that are on that
20 side of the property, on the private lot: Is there
21 really some value that he is concerned about, or is it
22 a frivolous objection or a philosophical one and to
23 what degree -- what will it cost us to accommodate him.
24 And I would look at all those factors.

25 Well, in the case of my discussion with

1 Don Fynn, he said: What is the worse that can happen,
2 and I said: Well, perhaps a spot fire from a burning
3 brand lands and catches in the balsam understorey and
4 burns a few trees, a little spot like that. I think
5 that's about the worse that can happen.

6 He said: Well, if it was worse than that
7 and there was property damage, would you pay, would you
8 pay for the damage to my property? And him being a
9 lawyer I said: How can we refuse. I mean, that's only
10 normal to compensate for damages caused, at least in my
11 view.

12 So that's how the discussions went. What
13 would happen if he objected? We would have to consider
14 those other things. Try to accommodate people, and we
15 go to great lengths to do so. But there may be cases,
16 and it does it happen, where people raise concerns in
17 timber management plans or object to an operation and
18 yet they are overruled because we feel that it is a
19 frivolous objection or one that we cannot -- and one
20 that we cannot easily accommodate. So that's my
21 answer.

22 MS. KLEER: Q. What would be their
23 recourse? I suppose they could seek an injunction?

24 MR. HYNARD: A. Well, what would be Mr.
25 Fynn's recourse?

1 Q. What would be anybody's recourse who
2 you decided that their objection was frivolous?

3 A. Yes. Well, the bump-up is their
4 recourse, that is their final recourse. But
5 occasionally this happens, occasionally people will
6 object to things and cottage owners occasionally, they
7 don't like things to change anywhere in Haliburton
8 County, for example. And when they bought their
9 cottage lot from us they bought an acre lot, they
10 didn't buy the thousand acres behind, and they can't
11 expect to have absolute control over that Crown land.

12 So there is a timber management planning
13 process, there is a planning team, there is
14 documentation of it all, there is a bump-up as a final
15 last undesired course of action, but those exist.

16 MS. KLEER: Okay. We are ready to break
17 at this point.

18 THE CHAIRMAN: Thank you. We will break
19 for 15 minutes.

20 ---Recess taken at 3:40 p.m.

21 ---On resuming at 4:00 p.m.

22 THE CHAIRMAN: Thank you. Be seated
23 please.

24 I see Mr. Hynard is probably detained in
25 court somewhere.

1 MS. KLEER: Are we going to wait for him?

2 THE CHAIRMAN: Yes, I suppose we should
3 wait for him because...

4 MS. MURPHY: He's coming right now.

5 THE CHAIRMAN: Is he coming?

6 MS. KLEER: Mr. Chairman, I just wanted
7 to clarify with respect to your point about NAN
8 providing information on water supplies, that NAN will
9 be addressing fully the question of notice in the Panel
10 15 cross-examination as well as in our direct evidence.

11 THE CHAIRMAN: Very well.

12 MS. KLEER: Thank you.

13 Q. Okay. I would like then to turn to
14 Exhibit 621 which is the summary of documented
15 complaints received by MNR districts. I think that was
16 provided in the package, but has already been
17 introduced earlier.

18 Either Mr. Buss or Mr. Galloway can
19 answer this question. There is a complaint made here
20 by a native band and I would like to inquire which
21 native band it was, first of all?

22 MR. GALLOWAY: A. Yes, it was the
23 Constance Lake Band.

24 Q. Now, that's a NAN Band; is that
25 right?

1 A. Yes, by the list that you have
2 provided us with.

3 Q. Okay. What was the nature of their
4 complaints?

5 A. This was a sort of general
6 information letter in this case and it was in regards
7 to concerns about wildlife. And the -- it's in one of
8 the resolved, would have fallen in the category of
9 information/education and was done by letter and
10 personal contact and the issue resolved.

11 So in that case - I happen to know that
12 one in a little more detail - the people discussed it
13 and provided information on the concerns that were
14 expressed. And it was to wildlife. And then that
15 resolved the issue.

16 Q. So did they send you a letter, was
17 that the nature of their complaint?

18 A. I think that one came in by letter
19 and personal contact.

20 Q. And was it in response -- what was it
21 in response to, was it just a general --

22 A. No, it was in response to a notice in
23 the paper, one of the 30-day notices -- public notices.

24 Q. Do you know when that complaint was
25 received? It's somewhere between '84 and '88?

1 A. Yes, that one I do remember, as a
2 matter of fact. It was 1984.

3 Q. 1984. In that case, was the
4 Constance Lake Band water supply in issue at all, was
5 this --

6 A. No. In that case, the issue was a
7 concern about wildlife in the impacts in the spray
8 blocks.

9 Q. Okay. Now, I have one question on
10 Panel 13. Page 315 there is evidence about reportable
11 incidents. And if we could turn to page 315 on Panel
12 13 for a second.

13 Now, it's my understanding that any time
14 a person is sprayed, a bystander is sprayed that would
15 render it a reportable incident; is that correct?

16 A. Yes, that's correct, and Mr.
17 Nicholson stated that this morning.

18 Q. Okay. Then, what would be the nature
19 of the project supervisor's corrective action if a
20 person were so sprayed, let's say, a native person were
21 sprayed, what would they do?

22 MR. NICHOLSON: A. Well, whether they be
23 a native person or our own staff or whoever, the
24 procedure would be the same and even if it was an
25 alleged exposure, an alleged spraying.

1 Meet with the people. The first aspect
2 of corrective action is if in fact they were sprayed
3 take them to a clinic to see a doctor, so desired by
4 them and their doctor with medical information
5 concerning the pesticide that is used.

6 Q. Is there any follow up by MNR on
7 these people in these incidents?

8 A. In terms of continued dialogue
9 after -- once it has been resolved, if satisfactory
10 action was taken, it would be fine and a record would
11 be kept of the incident.

12 Q. But there would be no effort made in
13 year two, year three, whatever to contact them?

14 A. Unless there was some particular
15 reason.

16 Q. Okay. I just wanted to clarify that.
17 It's just a one-shot effort?

18 A. No, I wouldn't go so far as to say
19 it's a one-shot effort. Whatever would be required
20 would be taken in terms of taking them to the clinic.
21 If there were still continued concerns about it, there
22 would be continuous dialogue, talking with Health and
23 Labour, other agencies would be brought in to, if the
24 people was still concerned about the exposure, to
25 alleviate their fears.

1 Q. Okay. But let's say the person
2 didn't express any concern, they had gone to the health
3 clinic and dealt with it, there would be no effort by
4 MNR to follow up with respect to that person if they
5 had made no indication that that is what they desired?

6 A. If both parties were happy, I think
7 that would be right.

8 Q. Okay. Then I have just one final
9 area of questioning, and this is on -- a general
10 question on the discussion of socio-economic impacts.

11 When I look at Panels 12 and 13 I see
12 that there is a paper on the socio-economic impacts of
13 manual cleaning, of manual tending, but there is no
14 specific discussion of the socio-economic of chemical
15 cleaning, or at least there is no separate paper and
16 the same would apply to Panel 13.

17 Is there a discussion anywhere in the
18 witness statements about the socio-economic impacts of
19 chemical cleaning and of insecticide use?

20 MR. CHURCHER: A. As far as insecticide
21 use is concerned and to a certain extent -- to a very
22 great extent the chemical cleaning aspects as well, I
23 believe it was explained at the outset of the panel
24 that it was not addressed specifically, there was not a
25 specific paper that addresses that, but it is a topic

1 that was touched on and covered by I believe virtually
2 all of the members of this panel in their direct
3 evidence, certain aspects or some aspects of it.

4 Q. Okay. But it's clear then that you
5 just haven't broken it down as you have with Panels 12
6 and 13 into discussion for each of the interest groups
7 or the stakeholders?

8 A. As with previous panels, you mean, we
9 don't have a specific paper--

10 Q. That's right.

11 A. --that deals specifically with
12 socio-economics. That's correct, yes.

13 Q. So your position is then that you
14 have covered off the socio-economic impacts in your
15 general evidence in all of these two panels?

16 A. Yes.

17 MS. KLEER: Okay. I have no further
18 questions. Thank you very much.

19 THE CHAIRMAN: Thank you, Ms. Kleer.

20 Ladies and gentlemen, we have received
21 notification from Mr. Edwards that he can be here at
22 five to proceed with the scoping session. We asked him
23 to specifically see if it were possible to change from
24 this evening at 7:30. He has made some special
25 arrangements because he was occupied at five and,

1 accordingly, we in fairness will not keep him waiting
2 and we will go into the scoping session at five.

3 For the next hour, however, we could
4 commence with Mr. Hanna's cross-examination on behalf
5 of the Federation.

6 MR. HANNA: Good afternoon panel. Good
7 afternoon members of the Board.

8 I thought I would just give you a brief
9 idea where I'm going in my cross-examination before I
10 started in, so the Board would have an appreciation.

11 I might, first of all, just say I will be
12 referring -- actually, this afternoon, I may not get to
13 any of the exhibits that I have. I may get to Exhibit
14 607 which was introduced with this panel, but I expect
15 that will probably be the only exhibit I get to this
16 afternoon.

17 I would like to make it very clear to the
18 panel at the outset that my client, the Ontario
19 Federation of Anglers & Hunters does not object, per
20 se, to the efficient use or to the use of efficient and
21 safe timber management tools for tending and
22 maintenance.

23 Our concern is with the wise and
24 judicious use of such tools in order that the
25 integrated resource management objective of the

1 Ministry; that is, the optimum benefit to all forest
2 users is achieved and not maximum benefit for one user
3 group. So that's where I'm coming from and just so the
4 panel understands that, that's the position that we're
5 coming from.

6 The focus of the cross-examination will
7 be on the following: the intensity and nature of
8 tending and maintenance currently practised in the
9 province and likely be practised in the future; the
10 potential effects of that level of use currently and in
11 the future; the current level of knowledge of those
12 impacts; and - a topic that the Board has heard me
13 speak on before - whether impacts of tending can be
14 explicitly quantified.

15 CROSS-EXAMINATION BY MR. HANNA:

16 Q. Ms. Krishka, I would like to begin
17 with you, if I might. It appears that there is still
18 some hope for enlightenment within the conservative
19 bastion of the Ministry. You are the first female
20 expert witness for the Ministry and I would suggest
21 that this is certainly...

22 MS. MURPHY: Excuse me, but I think he's
23 wrong.

24 MR. HANNA: Oh, sorry there was...

25 THE CHAIRMAN: Well, I don't know whether

1 any of this is relevant to the matter.

2 MR. HANNA: Is relevant. Certainly it
3 isn't, Mr. Chairman.

4 Q. Is it your view that the literature
5 search that you have undertaken, whether it's
6 comprehensive or are there some material that is not
7 included?

8 MS. KRISHKA: A. There is certainly
9 additional material on that subject that's not included
10 in this literature review, but I feel it is fairly
11 comprehensive as far as the literature that is
12 available in the area of the undertaking.

13 Q. Was there material that you had
14 specifically excluded that you felt was relevant,
15 but --

16 A. No, no. What -- in the time we had
17 available we searched databases that we were aware of
18 and took whatever data was available, whatever
19 literature was available in those databases.

20 Q. Now, I was quite impressed with the
21 thoroughness of the literature search that you did and
22 I think that should be noted, but I was interested in
23 knowing why you felt it was necessary for your
24 particular evidence to undertake such an extensive
25 review?

1 A. Well, I think I stated when I gave my
2 lead evidence that there is some interest in this
3 particular area and the question of whether in fact
4 tending works, and it was for that reason that we felt
5 there was enough interest to justify doing the
6 literature search.

7 Q. So am I to infer from that that with
8 respect to some of the other issues that might be
9 before the Board, there isn't the same level of
10 interest?

11 A. I don't think I can speak for other
12 areas.

13 Q. So this was your own personal
14 interpretation of the level of interest?

15 A. Of the subject area that I was
16 dealing with, yes.

17 Q. Would you agree with me that the
18 literature on tending and indeed all components of
19 timber management is extensive and rapidly expanding?

20 A. Would you mind repeating that?

21 Q. Sure. Would you agree with me that
22 the literature on tending and indeed all components of
23 timber management is extensive and is rapidly
24 expanding?

25 A. I hesitate to speak to all

1 components.

2 Q. All right. Well, let's limit it to
3 tending then?

4 A. All right. I think there is, yes, a
5 fair degree of information available on tending and I
6 think that is indicated in the extent of the literature
7 search that I did. And, yes, I do think -- there
8 certainly is on-going research in that area.

9 Q. Now, it has been suggested on a
10 number of occasions that the silvicultural guidelines
11 are a primary technical reference for unit foresters.
12 Is this your understanding of the silvicultural -- I am
13 sorry, silvicultural -- did I say guidelines? Yes,
14 that is what I meant to say, silvicultural guidelines?

15 A. That they are a primary...?

16 Q. Technical reference source for unit
17 foresters?

18 A. As I understand them, yes.

19 Q. Now, what confused me with this was,
20 I found you were very thorough and then I went to the
21 silvicultural guidelines and I did perhaps what might
22 be seen as somewhat of a bit of a no-brainer task - I
23 tend to do those things every now and again and I got
24 tired - but after I had gone through, I don't know,
25 probably I think three or four pages of your literature

1 search, I failed to find one in the spruce
2 silvicultural guidelines.

3 I was wondering why you have done this
4 very thorough work and whatever, and I went and tried
5 to see: Well, what are the references that you have
6 come up with in your literature search and I couldn't
7 find any of those in the silvicultural guidelines.

8 Now, is there some reason for that?

9 A. Well, I didn't write the spruce
10 silvicultural guidelines and I'm not familiar with the
11 guidelines, you know, on a real detailed basis. I
12 don't think I can answer the question why they didn't
13 include the references I used.

14 Q. Well, perhaps -- I realize this is
15 sort of out of the blue to you, I'm sure you haven't
16 done it because only some of us who did something a
17 no-brainer would do it, but do you think you could
18 just -- I'm only looked at three pages and it took me
19 about five minutes, maybe I have missed something.

20 Perhaps you could just - not right now of
21 course - but you might just look and see, this
22 extensive bibliography that you've prepared, I just
23 went through the first pages of it - I can give you the
24 exact pages I looked at - I think I got through to the
25 bottom of page 301.

1 So I went from pages 299 to 301 and I
2 went through the silvicultural guidelines and the
3 references there and I didn't find any that matched.
4 Can you just confirm that for me?

5 A. I could undertake to confirm that for
6 you, I can't do it now.

7 Q. And just in doing that, I thought
8 well maybe these are totally different references that
9 don't have anything to do with the silvicultural
10 guidelines and, therefore, they might not be
11 legitimately in the silvicultural guidelines.

12 A. I might clarify, that the
13 silvicultural guidelines weren't included in the
14 databases that we searched for this literature search.

15 Q. No, no, I wasn't suggesting the
16 silvicultural guidelines weren't referenced in your
17 bibliography. No, that wasn't --

18 A. They weren't.

19 Q. I beg your pardon?

20 A. They were not.

21 Q. No, I appreciate that. That wasn't
22 my point. No, simply that you have provided here quite
23 a thorough investigation of tending information.

24 A. Oh, I might point out that my
25 literature search was prepared some time after any of

1 the silvicultural guidelines had been prepared.

2 Q. Well, let me give you an example. If
3 you look on page 301 --

4 MR. FREIDIN: Well, Mr. Chairman, with
5 the greatest respect for Mr. Hanna, I don't think he
6 should be taking the time of these witnesses to do his
7 work for him.

8 If he wants her to look at the document
9 and make that sort of analysis, then I would suggest
10 it's incumbent upon him to at least undertake to do
11 that himself and suggest to the witness that that's not
12 the case and if he wants to lead evidence about that at
13 some other time but, you know, to the extent that these
14 witnesses can be put to doing work during evenings of
15 this type, in my respectful submission, should be
16 limited.

17 THE CHAIRMAN: Well, I think there is
18 some merit really, Mr. Hanna, in what Mr. Freidin is
19 saying. You can put to the witness a question: Does
20 she know a reason why some of the literature that she
21 has cited are not contained in the silvicultural
22 guidelines. She can either answer yes or no to that or
23 provide you with whatever reason she can come up with.

24 Beyond that, you can call your own
25 witnesses at an appropriate time to indicate why

1 perhaps some of this literature should have been
2 included in those guidelines and your witnesses can
3 give those reasons, if they so wish.

4 But beyond that, we have a witness panel
5 here, one of the witnesses compiled a list. It may not
6 correspond with another document, and you are entitled
7 to ask her why, in her opinion, does it or does it
8 not, and I think that's the end of that line of
9 questioning.

10 MR. HANNA: Q. Ms. Krishka?

11 A. I don't know -- is your question
12 why--

13 Q. I think --

14 A. --that literature -- my data doesn't
15 match?

16 THE CHAIRMAN: I think the question is:
17 You prepared a literature search and cited certain
18 literature on the subject of tending. Do you know why
19 the literature that you cited may not be found in the
20 silvicultural guidelines?

21 MS. KRISHKA: No, I do not.

22 THE CHAIRMAN: End of question.

23 MR. HANNA: Thank you, Mr. Chairman.

24 MR. GALLOWAY: I might be of some
25 assistance. I was one of the review people, for

1 instance, in the spruce and poplar one and the author
2 of the jack pine one, and specifically the spruce and
3 poplar one which have just come out recently, would
4 have been in production at the same time as Ms. Krishka
5 was doing this search and I couldn't say is there some
6 of each on both lists and maybe they were looking at it
7 from different point of view as well.

8 But it would be quite easily that Ms.
9 Krishka might have looked up papers, the other people
10 producing those two guides would have been searching
11 that information sources as well and they might not
12 have come up with exactly the same ones. That is quite
13 possible. They were on going at virtually the same
14 time, side by side.

15 MR. HANNA: Q. Well, Mr. Galloway, could
16 you turn to page 301 then, please.

17 MR. GALLOWAY: A. In Panel 12 or 13?

18 Q. 12, sorry. It is Volume II, I
19 believe.

20 A. Yes.

21 Q. I would like you to look at the paper
22 by Bunce, B-u-n-c-e. Can you tell me when was that
23 published?

24 A. Yes, that's 1979 as it states here.

25 Q. So that was well before the

1 silvicultural guidelines for spruce were issued; is
2 that correct?

3 A. That's correct.

4 Q. Now, would you say that this article
5 is relevant to unit foresters in this province dealing
6 with silviculture?

7 A. Yes, it is. It would be.

8 Q. Could you tell me if that article is
9 in the silvicultural guidelines for spruce?

10 A. No, I can't answer that directly. I
11 could look it up.

12 MS. KRISHKA: A. Specific to that
13 particular study, that is not an article that was
14 printed in a journal, that is an undergraduate thesis
15 from a student at Lakehead University.

16 Q. So you are saying, therefore, it
17 wouldn't be of interest to a unit forester?

18 A. It may be of interest, but it may not
19 have been suitable for reference in the silvicultural
20 guidelines. In fact, there were some particular
21 problems in that particular study which probably would
22 have -- if it had been considered by the author, he may
23 have chosen not to use it for specific reasons that are
24 detailed in that particular thesis.

25 Q. But you didn't decide not to use it?

1 A. I used it and explained in the text
2 of my evidence some of the inherent problems in that
3 particular study.

4 MR. HANNA: Mr. Chairman, I have asked
5 the witness to look at one article, I'm not going to go
6 through any of the details in it, all I simply want do
7 is ask the witness to look at the subject matter of it.

8 I did not find in it in her evidence and
9 I'm simply curious to find out why that is not included
10 in her evidence and if that would be included in
11 evidence of someone else. It's dealing specifically
12 with tending.

13 MS. MURPHY: Well, Mr. Chairman, Mr.
14 Hanna provided two documents to these witnesses at
15 about two o'clock this afternoon. I received them and
16 I did provide them to the witnesses, but I advised him
17 that I would object to him asking witnesses to refer to
18 these articles today if they haven't had an opportunity
19 to look at them.

20 And I advised him at that time and I
21 think it's only fair to allow the witnesses to at least
22 have time to review these documents before he asks them
23 to comment on them, since...

24 THE CHAIRMAN: Is this a lengthy --

25 MS. MURPHY: Well, at this point -- it is

1 25 pages. At this point we know he's going to be here
2 tomorrow.

3 MS. KRISHKA: Actually, I have looked at
4 the article that you provided and looked at it with Mr.
5 Hynard and we both feel it's fairly complicated and we
6 would like to have the evening to review it further.

7 MR. HANNA: Certainly, that's fine.

8 THE CHAIRMAN: Okay. So reserve your
9 questions on that document until some time tomorrow.

10 MS. CRONK: Sorry, Mr. Chairman, could I
11 ask for clarification as to what document is being
12 referred to. Ms. Murphy has just said that two were
13 provided. I have just now been handed one. Could we
14 have an opportunity to review them as well?

15 THE CHAIRMAN: Is there more than one
16 that this witness has been requested to look at?

17 MS. MURPHY: So far there are two that
18 two different witnesses have been asked to look at.

19 MR. HANNA: Excuse me, Mr. Chairman,
20 there is one per witness. There is only one article I
21 asked Mr. --

22 THE CHAIRMAN: Okay. Is that going to be
23 the extent of documents provided at this late stage for
24 witnesses to review?

25 MR. HANNA: To the best of my knowledge,

1 Mr. Chairman.

2 MS. MURPHY: To be clear there are two
3 documents.

4 THE CHAIRMAN: Two documents, but one to
5 be reviewed by one of two witnesses -- by separate
6 witnesses. Right. Okay.

7 Ms. Cronk, did you get the information
8 you require?

9 MS. CRONK: I am sorry, I did. Thank you
10 very much, Mr. Chairman.

11 THE CHAIRMAN: Thank you.

12 MR. HANNA: Mr. Chairman, I'm prepared to
13 provide the other parties -- I can do it after the
14 hearing, whatever.

15 THE CHAIRMAN: All right. Any of the
16 other parties that would like a look at this document
17 overnight as well, please have Mr. Hanna produce it
18 today.

19 Thank you.

20 MR. HANNA: Q. Thank you, Ms. Krishka,
21 that is all for now. We will come back to you
22 tomorrow.

23 Who is the quarterback on this panel or
24 is there one?

25 MR. HYNARD: A. It's me, Mr. Hanna.

1 Q. Your last play at the game so they
2 put you as the quarterback; did they, Mr. Hynard.

3 I just want to make sure I get my
4 questions right here and whatever, I'm going to ask Mr.
5 Hynard to give me some assistance in directing my
6 questions.

7 Now, we have heard about Mr. Kingsbury
8 and he's coming in August and whatever. I just want to
9 make sure I understand clearly what the members of your
10 panel are dealing with and what they aren't. Now, is
11 it right that Mr. Kingsbury is going to deal with the
12 direct and indirect impacts of herbicides on fish and
13 wildlife?

14 A. Yes. Yes, essentially that's right.

15 Q. And he will be dealing with Document
16 No. 4. I should reserve my questions with respect to
17 fish and wildlife impacts as contained in Document No.
18 4 until Mr. Kingsbury comes?

19 A. Yes, you should.

20 MS. MURPHY: Or pesticide. Tending
21 involves more than use of pesticides.

22 MR. HYNARD: Yes. Excuse me, his is with
23 respect to pesticides.

24 MR. HANNA: Q. I'm sorry, that was the
25 intent of my question.

1 MR. HYNARD: A. Yes, that is how I
2 understood it.

3 Q. Okay. I would like to look at
4 Exhibit 607 which I believe was introduced at the
5 beginning of your panel.

6 THE CHAIRMAN: Can you tell us what that
7 is?

8 MR. HANNA: Yes, sir. That is the thing
9 that shows how the panel is organized.

10 MS. MURPHY: The overhead that was used
11 at the beginning of the panel to explain what the
12 witnesses were going to be talking about.

13 MR. HANNA: Q. Now, I believe Ms. Kleer
14 dealt with this issue, I would just like to touch on it
15 again. I believe in Panels 12 and 13 the only
16 reference to socio-economic impacts is on page 75,
17 paragraph 37; is that correct?

18 MR. HYNARD: A. Mr. Buss, is that
19 correct?

20 MR. BUSS: A. I don't believe that's
21 correct. I gave evidence, written and oral, with
22 regards to socio-economic effects, a number of the
23 stakeholders. It's in my evidence.

24 Q. Yes, I have read your evidence and I
25 have read the written and the verbal evidence so I'm

1 familiar with your evidence.

2 MR. BUSS: A. Okay. What are you
3 referring to now then?

4 Q. No, I just want to make sure that
5 that is the sum total of what -- I want to get some
6 facts on the table first before I start asking about
7 the evidence.

8 THE CHAIRMAN: Mr. Hanna, we don't have
9 that exhibit. Are we going to need it?

10 MR. HANNA: Exhibit 607, sir?

11 THE CHAIRMAN: No.

12 MR. HANNA: I don't think it's necessary
13 quite honestly, sir. I can tell you -- I can describe
14 to you verbally. It's not a very complicated exhibit.

15 MR. CHURCHER: To further clarify the
16 response that I gave to the question when that was
17 asked before and, as I understand your question and Mr.
18 Buss' response, that is not the sum total evidence that
19 is regarding socio-economic.

20 As I indicated to the previous question,
21 that is the only paper that specifically addresses
22 socio-economic impacts. The socio-economic impacts
23 with regards to pesticide use are covered throughout
24 the two documents of Panel 12 and Panel 13 or all of
25 the documents of Panels 12 and 13 and have been touched

1 on to a greater or lesser degree by all members of this
2 panel.

3 Q. Thank you for that clarification, Mr.
4 Churcher. On page 76 of the witness statement it
5 indicates that Mr. Galloway and Mr. Buss will be
6 addressing paragraph 37. Is that correct, Mr. Hynard?

7 MR. HYNARD: A. Yes, that is what it
8 says.

9 MR. HANNA: Now, Mr. Chairman, Exhibit
10 607 shows what each of -- the responsibilities of the
11 witnesses are and there's a large box at the bottom I,
12 think the panel has already heard reference to before,
13 that this will be dealt with by all witnesses and it
14 deals with socio-economic impacts.

15 Q. Now, as I understand it, there has
16 been a slight shift in responsibility here. Originally
17 we had Mr. Buss develop a paper on socio-economic
18 impacts and Mr. Galloway indicated he would also
19 comment on that, and now we have everyone on the panel
20 commenting on socio-economic impacts; is that correct?

21 MR. GALLOWAY: A. Yes, and that was done
22 on purpose to focus the oral evidence so as not to
23 repeat the written evidence and to focus on areas
24 brought to our attention by interrogatories and
25 statement of issues.

1 Q. Mr. Hynard, I presume that you are
2 the one that probably knows this better than anyone:
3 What was the crash course that the panel took on
4 socio-economic impact assessment that they all of a
5 sudden became instant experts in this particular area
6 of endeavor?

7 MR. HYNARD: A. I would say the panel
8 took the same school of hard knocks that Mr. Clark took
9 in the previous two panels; they have gained their
10 experience through field practice and that is where
11 their knowledge stems from.

12 There was no crash course. It was
13 structured the way it was for the reasons that Mr.
14 Galloway just explained. If you have a question with
15 respect to socio-economic effects of tending, there is
16 a witness here who will be glad to answer your
17 question.

18 Q. Are you suggesting to me that the
19 members of this panel have the same level of expertise
20 as Mr. Clark or no greater level of expertise than Mr.
21 Clark?

22 MR. FREIDIN: Mr. Chairman, we all know
23 very well what Mr. Hanna's view is as to what
24 constitutes and what will not constitute acceptable
25 socio-economic evidence or evidence of socio-economic

1 effects.

2 I believe that he understands that he has
3 the opportunity to lead evidence on what he believes is
4 a proper approach in his evidence. He has asked
5 repeatedly panel after panel the same questions and has
6 been told how the Ministry has approached the subject
7 matter of dealing with socio-economic effects.

8 I don't believe it will be helpful for
9 him and in fact I would think it would be an unwise use
10 of time of this Board to repeat that line of
11 questioning with this panel again.

12 MR. HANNA: Mr. Chairman, that is exactly
13 the reason I am asking these questions, to avoid having
14 to go into it because I just want to make sure there
15 isn't an expert on this panel that I should be asking
16 those questions to.

17 And I have finished my line of questions
18 because I think I have got where I want to get, but
19 there is not someone on this panel who I should be
20 asking those questions to.

21 THE CHAIRMAN: They appear to be all
22 prepared to answer questions on that subject and if
23 there is a specific question they may designate a
24 specific person to answer that question. All of them
25 may not be individually able to answer every single

1 question on that topic, but --

2 MR. HANNA: And likewise -- I'm sorry.

3 And likewise, none of them have been qualified as
4 socio-economic -- excuse me, socio-economic impact
5 assessment experts, and so therefore I can only ask
6 them factual questions. Is that not fair?

7 THE CHAIRMAN: Well, I don't think they
8 have been specifically qualified in that area, I would
9 have to go back in memory to be --

10 MR. HANNA: I can give you the list, if
11 you wish, Mr. Chairman, but I think...

12 THE CHAIRMAN: Well, I am sure we have it
13 written down as to the areas that they were qualified
14 in.

15 And I think that's correct; is it not,
16 Mr. Freidin, that none of these witnesses were
17 specifically qualified as an expert in that area in the
18 manner in which we have been qualifying witnesses to
19 date in this hearing?

20 MR. FREIDIN: That's correct, there was
21 no one qualified as such. It doesn't mean they can't
22 be asked factual questions about what they view as
23 being the socio-economic effects of the activities that
24 they are talking about. They can speak to that with
25 some experience and some knowledge, in my view, and can

1 probably deal with certain questions.

2 We know the kinds of questions that Mr.
3 Hanna might want to ask that they aren't experts in and
4 I think Mr. Hanna knows that and should govern himself
5 accordingly.

6 THE CHAIRMAN: Well, ask the specific
7 questions, Mr. Hanna. If it turns out that the
8 witnesses can't help you or it calls for an expert
9 opinion, we will deal with it in the context of a
10 specific question.

11 MR. HANNA: Thank you, Mr. Chairman.
12 I will postpone that issue. I am not going to go any
13 further with the socio-economic, I think I have
14 basically established where I have to go in terms of my
15 questions and that was my purpose.

16 Q. Mr. Campbell, I would like to take
17 what time is made available here --

18 MR. HANNA: Mr. Chairman, perhaps -- I
19 saw Mr. Edwards come in. I am just going to start into
20 Mr. Campbell and I am quite prepared to continue
21 through them. I will probably be, I would expect,
22 about 40 minutes. If you wish, I will continue with
23 Mr. Campbell -- I will be finished Mr. Campbell, for
24 all intents and purposes, at that point.

25 THE CHAIRMAN: Okay. If you finish Mr.

1 Campbell in 40 minutes that would be acceptable, Mr.
2 Edwards, to start the scoping at that time?

3 MR. EDWARDS: I am ready to start scoping
4 any time you are, Mr. Chairman.

5 THE CHAIRMAN: Thank you. 40 minutes,
6 Mr. Hanna.

7 MR. HANNA: Thank you, Mr. Chairman.
8 Thank you, Mr. Edwards, for being here.

9 Q. Mr. Cam -- or excuse me, Dr.
10 Campbell, I would like to concentrate our discussion
11 primarily on two herbicides which I am going to be
12 speaking to you about and that's 2,4-D and glyphosate.
13 I believe you deal with both of these chemicals in your
14 evidence; is that correct?

15 DR. CAMPBELL: A. That's correct.

16 Q. Now, I believe in your witness
17 statement on pages 204 to 209 you provide a detailed
18 description of these two chemicals; correct?

19 A. Yes.

20 Q. Can you tell me, is 2,4-D a systemic
21 herbicide?

22 A. Yes, in the sense that if it is
23 absorbed into the plant it is translocated throughout
24 the plant.

25 Q. Perhaps rather than go to another

1 reference, what I would like to do is -- and I can tell
2 you specifically where I am coming from on this.

3 I looked at the ESSA report, and I am not
4 talking here about Document No. 4, I am talking about
5 the effects monitoring report some time ago, and that
6 also dealt with the matter of herbicides and whatever.

7 And I realize we haven't got the exhibit
8 here, if you wish I can read it directly out of the
9 exhibit, but there was a suggestion there that
10 glyphosate was different than 2,4-D in terms of its
11 mode of action. Can you perhaps clarify that for me?

12 MR. FREIDIN: Could you perhaps, before
13 you do that, clarify which ESSA report you are
14 referring to. In general, the effects monitoring, is
15 that Exhibit 381--

16 MR. HANNA: Yes, it is.

17 MR. FREIDIN: --referring to Dr. McNamee?

18 MR. HANNA: Yes, it is. I am referring
19 to page 104 of that document if someone wants -- I
20 could read it, if you will, I will read it into the
21 record for the witnesses.

22 I'm sorry, Mr. Chairman, I wasn't
23 thinking -- I was hoping this was going to be a
24 straightforward thing.

25 DR. CAMPBELL: What page was that?

1 MR. HANNA: I'm sorry, I said 104, it
2 should have been 140. And I am looking there, it
3 says -- I can just read it to you. It says:

4 "The impact of 2,4-D on food after one
5 application does not appear to be
6 significant in the long term. Since this
7 herbicide is not a systemic, shrub
8 species are only temporarily set back or
9 if killed often resprout vigorously."

10 Now, that's what I am confused about
11 because you just told me that 2,4-D is a systemic and I
12 am reading here that it is not a systemic, and I am
13 just trying to get that clarified?

14 DR. CAMPBELL: A. Well, I think that --
15 I had not looked at this document before. I would have
16 to disagree with the statement that it is not systemic.

17 However, I think the context in which
18 this is used is that 2,4-D does not kill the roots on a
19 number of woody species, for example, aspen. The 2,4-D
20 would be translocated down to the roots, but it does
21 not normally kill them, and I think that's probably
22 where the confusion has come in.

23 Q. So the difference between 2,4-D and
24 glyphosate is one kills the roots, the other doesn't?

25 A. No. The 2,4-D will kill the roots of

1 some species, for example birch and pin cherry, but
2 also kill the roots of dandelions, plantain, that type
3 of thing. As I pointed out, each of these herbicides
4 has a different spectrum of plants that it controls.

5 Q. Which of the two insecticides has the
6 longest sustaining effect in terms of vegetation
7 suppression?

8 A. You mean herbicides; do you not?

9 Q. I'm sorry, yes, I do mean herbicides.

10 A. You said insecticides.

11 Q. I'm sorry.

12 A. Could you repeat that then, please?

13 Q. Sure. Which of the two herbicides
14 has the longest sustaining effect in terms of
15 vegetation suppression?

16 A. I don't think you can generalize it,
17 it depends on the particular situation in which it is
18 used. Neither of them persist in the environment for a
19 significant length of time.

20 You kill -- both of those herbicides will
21 kill or suppress and, on many cases, the vegetation
22 which is present and leafed out at the time. Anything
23 which sprouts up from the roots or comes from seed
24 after the application will not be controlled.

25 Q. Yes. You've made that clear in your

1 evidence. Again, I am trying to get this clarified for
2 my purposes that I have seen reference that glyphosate
3 has effects that may last 5 to 10 years in terms of
4 vegetation suppression; whereas 2,4-D often is even
5 used to encourage sprouting in some wildlife
6 applications?

7 A. You may well have an effect that
8 lasts in the sense that if you, for example, killed the
9 aspen on a site, it would take a number of years before
10 the aspen grew back up again.

11 Q. When is the effect of glyphosate
12 felt? Like, does it happen immediately or is there a
13 gestation time, a period before it actually takes
14 full -- has full impact?

15 A. Felt in what sense?

16 Q. Killing the plant.

17 A. Well, I have never asked a plant,
18 but...

19 Q. There are ways to measure though?

20 A. In terms of what you can see, there
21 is a difference between glyphosate and 2,4-D. 2,4-D
22 you can often see visible effects in terms of foliar
23 browning within a matter of a couple of weeks.

24 Where in the case of glyphosate,
25 particularly an application which is made late in the

1 season, you may not see an effect on the plant until
2 the following season when it doesn't leaf out. It is
3 much more slow acting.

4 Q. Mr. Buss, throughout the evidence of
5 a number of the panelists there has been reference to
6 weed control. What do wildlife biologists call
7 vegetation that foresters call weeds?

8 MR. BUSS: A. Well, we may look at
9 plants and group them in different ways, but some
10 species that can be weeds to foresters in one situation
11 may be a crop tree in another situation. I think the
12 definition that's operable is that it's a plant growing
13 in a place that you don't want it.

14 Q. Yes, but I am asking you from a
15 biologist's point of view those things that are called
16 weeds, would they be called browse?

17 A. Could be, yes.

18 Q. Would you agree that improved weed
19 control can also be seen as improved destruction of
20 quality moose habitat in habitat-related species?

21 A. It could be seen as controlling the
22 amount of vegetation on a site. If that happens to be
23 a limiting factor to moose in that area, then it could
24 be seen as having a detrimental effect on moose food.
25 But I don't think you could say in all cases that

1 necessarily the control of vegetation to a site is
2 going to lead to degradation of the site.

3 Q. Can you give me an example with the
4 use of glyphosate where application would increase the
5 moose browse on a site?

6 A. I didn't say it would increase, but
7 you couldn't consider the control as being negative
8 necessarily. For instance, if you had a clearcut and
9 you controlled competition in the centre of that
10 clearcut, it might not have a detrimental effect
11 because it is very likely that moose wouldn't venture
12 into the centre of the clearcut to use it.

13 If in fact it was on the very edge of the
14 clearcut and you were -- and it had been determined
15 that browse production was a problem, then it could be
16 seen as being detrimental or having an impact that
17 wouldn't be desirable.

18 Q. Dr. Campbell, do you have any idea
19 what the production cost, not the price, the production
20 cost of glyphosate is as compared to 2,4-D?

21 DR. CAMPBELL: A. No, I don't, and I
22 suspect that -- I guess it would be proprietary
23 information. I don't suppose the manufacturers
24 particularly are going to want to broadcast that.

25 Q. Is it your understanding that 2,4-D,

1 in terms of its application in all applications, not
2 just in forestry, is used to a much greater extent than
3 glyphosate?

4 A. Yes, that's correct. Part of the
5 reason for that, I suspect, would be that 2,4-D is in
6 agriculture a more selective herbicide.

7 Q. You're aware that there is what is
8 called economies of scale in terms of production of
9 chemicals, that as you produce more you can reduce the
10 production cost?

11 A. Yes, that's correct.

12 Q. Would that be possible with
13 glyphosate if it was used more extensively?

14 A. In actual fact, the price of
15 glyphosate in the product that we get, Vision, we were
16 paying approximately \$25 a litre four or five years
17 ago. This year the price is \$14 a litre.

18 The other point that you have to realize
19 is that prices tend to be based on what the market will
20 bear and the patent will be coming off glyphosate, I
21 believe it is the end of November of next year, which
22 means that other manufacturers will be able to produce
23 it and indications are that the price will come down at
24 that time further.

25 Q. I believe in your evidence you

1 indicated that there has been a significant change in
2 the area treated with herbicides over the last 10
3 years. In fact, I believe there is an interrogatory to
4 that effect that showed the change in the area treated?

5 A. Yes, that's correct.

6 Q. And that's a fairly dramatic change
7 in the areas that been treated; is that correct?

8 A. Yes.

9 Q. And can you tell me when most of the
10 change occurred? Or maybe I will put it to you even
11 easier, was it around 1985/86 that there was a major
12 shift in the amount of area treated?

13 A. I just have to take a minute here, we
14 have it down somewhere.

15 MR. FREIDIN: If you are looking for your
16 interrogatories, Mr. Campbell, I think they are Exhibit
17 618. I think it was included in that.

18 MR. HANNA: Q. It is Exhibit 618, Mr.
19 Campbell -- Dr. Campbell.

20 DR. CAMPBELL: A. That's correct. The
21 major increase did not incur around '85, it was
22 probably more -- according to this anyway, between '83
23 and '84 was the largest jump.

24 Q. 1984 was when glyphosate was first
25 licensed in Ontario; is that correct?

1 A. That's correct. However in '84 - I
2 don't have the figures right at hand - I believe there
3 was only about 7,000 hectares treated with glyphosate
4 in 1984.

5 Q. So there is a number of factors
6 driving the change in herbicide use in the province at
7 the present time?

8 A. Yes, that's correct.

9 Q. Can we turn to your witness statement
10 and page 228, please?

11 A. What page, sorry?

12 Q. It is page 228, it is Table 2.

13 A. I have got it.

14 Q. I believe this table indicates that
15 the proportion of area treated by 2,4-D and glyphosate
16 is roughly equal, at least in the year 86/87?

17 A. Yes, that's correct, and I think
18 that's about -- as I pointed out, it was low in '84 but
19 of course that was the first year it was available. It
20 is probably -- I would expect it is going to stabilize
21 at about 50/50 as of this point.

22 Q. You anticipated my next question.
23 Perhaps you can expand on the reason for that, why you
24 are anticipating that? Why would you expect them to
25 stabilize at 50/50?

1 A. Well, I guess it is probably more a
2 question of having seen, you know, preliminary
3 information for what was proposed in successive years.
4 The other thing being that we know that there is--

5 Q. Excuse me for just--

6 A. --a definite place for both of them.

7 Q. I appreciate that.

8 A. The type of situations. As I say,
9 50/50, I meant it's a very rough ballpark type of
10 thing.

11 Q. I didn't -- just to clarify one thing
12 you said there. You said where it has been proposed.
13 I didn't understand, what did you mean by that?

14 A. What I am saying is, the figures we
15 used in preparing this statement was the last year that
16 we had actual use figures for that we could work up.

17 Q. You are referring to Table 2 now?

18 A. Yes, that's correct.

19 Q. Okay. So what you are telling me is
20 when you say it will roughly stay at 50/50 you are
21 saying 87-88, 88-89?

22 A. Indications -- you know, in terms of
23 talking to people in the field and whatnot, indications
24 are that they are going to be using that same sort of
25 split or have in fact.

1 Q. So this is historic, we just haven't
2 got the data all compiled so--

3 A. That's correct.

4 Q. --that's the problem you are faced
5 with, you can't tell us exact numbers but...

6 A. That's right. I mean, I have no
7 reason to believe that it is any different than this.

8 Q. Is price a factor in deciding how
9 much herbicide is used in any particular case?

10 A. I am not the man out on the firing
11 line, so perhaps I better turn that to Mr. Galloway.

12 Q. Mr. Galloway?

13 MR. GALLOWAY: A. Yes, it would be, and
14 it was one of the analysis of options that I presented
15 both in the written and in the oral part, that the cost
16 is a big part of your decision.

17 Q. And it comes in in two ways, in terms
18 of cost efficiency and I believe in terms of funds
19 available; is that correct?

20 A. Yes, definitely. We also mentioned
21 funds or limiting of funds might restrict your choice
22 of an option. If you got to the point in your decision
23 where you were going to implement your choice of
24 decision but funds in any one year might limit them.

25 Q. So if the price of one herbicide goes

1 down, that allows you to treat a larger area with the
2 same amount of funds; correct?

3 A. Depending on what proportion that
4 goes on, that's correct. You may not -- that does mean
5 that you would -- that the increase would be directly
6 proportional because, as Mr. Campbell said, that
7 decision would be made on a site-by-site decision and
8 the applicable tool would be used.

9 MR. HYNARD: A. Yes, that's right.
10 Where the availability of funds is a limiting factor to
11 the amount of tending you can carry out, but if in fact
12 funding was not a limiting factor, then the needs of
13 the crop for tending would be the limiting factor. You
14 wouldn't tend more because you had more money if you
15 didn't have the need.

16 Q. Are you suggesting, Mr. Hynard, that
17 we currently have adequate funds to satisfy our needs?

18 A. No, I'm not suggesting that at all.

19 Q. Are you suggesting that we have
20 inadequate funds?

21 A. Yes.

22 Q. So that if you could you would treat
23 a larger area?

24 A. Yes.

25 Q. Mr. Galloway, if more intensive

1 forestry is practised in Ontario and there is a
2 commitment of the political body to support that, is it
3 your view that the use of herbicides, in particular
4 very effective herbicides like glyphosate, will become
5 more common?

6 MR. GALLOWAY: A. They might. I think
7 the graph we presented of trends shows a flattening out
8 of that amount right now and, in my experience, that
9 will be the case.

10 Any increase after this sort of a backlog
11 area, that was when glyphosate became available, it
12 allowed certain sites to be treated that could not be
13 treated with 2,4-D and that's why that curve is
14 flattening out now. So that any increase that comes
15 about now would only be proportional to an increase
16 that's created by an increased harvest and renewal
17 program.

18 So if the renewal program was larger and
19 that renewal program therefore had more sites that
20 required tending, it would increase.

21 Q. Well, I am referring to a paper that
22 you have referred to, Mr. Galloway, and that's on page
23 174 and it is by a person who has received quite a bit
24 of discussion at these hearings and that's Dr.
25 Baskerville. And I believe his paper that's called The

1 Strategic Impacts of Failure to Control Competition
2 describes, how do you say, a scenario, another one of
3 Dr. Baskerville's visions of how the world might
4 unfold, of how herbicides might play a more important
5 role in forestry in the future.

6 Now, do you disagree with the views that
7 Dr. Baskerville is putting forward here?

8 A. Do I disagree?

9 Q. Yes.

10 A. No, I don't in general. There may be
11 a specific comment in here I might disagree, but in
12 general -- and that's why this paper is in here. The
13 impact and strategic impacts of herbicides are
14 essential to the forest management program.

15 Q. And is not the basic thrust of Dr.
16 Baskerville's paper that there will be a need for an
17 enhancement of those types of activities?

18 A. Yes, he states that you do not - and
19 I believe I quoted it - do not trivialize the lack of
20 tending tools, and that's a paraphrase of that.

21 If in our management planning process you
22 state the objectives for that management unit and that
23 includes an objective for long-term wood supply, as
24 well as an objective for wildlife integrated resource
25 management, then the unit manager is faced with

1 achieving that objective and that is achieved, as far
2 as the wood -- long-term wood supply objective in total
3 silvicultural packages, as Mr. Hynard has stated in
4 his, and tending is an important part of that total
5 package.

6 And there is -- in my mind, there
7 probably will be an increase as more demand for wood
8 supply on the units occurs and that trend is a slow
9 increase. I do not think there will be a major jump in
10 tending increase and I think that's reflected in the
11 trends graph that we presented.

12 Q. You are familiar with some of the
13 problems you can get into with using historical trends
14 to predict the future?

15 A. There is no doubt about that. There
16 is a guarantee you will be wrong.

17 Q. What projections have you done of the
18 expected area to be treated with herbicides over the
19 next 25 years?

20 A. I have not done a projection over the
21 next 25 years and I don't -- other than to predict a
22 demand or need for herbicides. The important projection
23 is how much wood do you need in the next 25 years. And
24 Dr. Osborn discussed that and we are, in various parts
25 of the province ongoing, analysing that.

1 Q. I can appreciate you see that's
2 important from a forester's point of view. From other
3 peoples' point of view, it may be important also to
4 know how much of the area is going to be treated with
5 herbicides. Can you appreciate that?

6 A. Yes, that's true.

7 Q. So it is important to protect the
8 wood but it is also -- to protect the implications of
9 that wood is also important?

10 A. Certainly the implications of
11 achieving that objective and that's what the timber
12 management plan does and that's why we get that input
13 from everyone else as well.

14 Q. Dr. Campbell, perhaps we've covered
15 this but I just want to make sure I understand this.
16 With the reduction in the cost of glyphosate, would you
17 still expect those proportions to stay the same?
18 Perhaps you can tell me the particular application that
19 2,4-D would be used preferentially to glyphosate?

20 THE CHAIRMAN: Well, Mr. Hanna, does that
21 not presuppose that there will be no development of any
22 other herbicide in the next little while as well?
23 I mean --

24 MR. HANNA: That was my next question,
25 Mr. Chairman. But that's fine, I don't mind asking

1 that one also.

2 THE CHAIRMAN: I mean, how can you
3 predict, how can you really predict the usage of
4 something in the future when new products may be
5 developed, companies which produce existing products
6 may go out of business, products which are presently
7 registered and authorized for use may have their
8 registrations withdrawn as more knowledge becomes
9 available, et cetera.

10 I mean, other than sheer speculation what
11 is the probative value of the answer to that kind of
12 question?

13 MR. HANNA: Well, I would suggest that
14 what you've just described, Mr. Chairman, is generic to
15 any projection you do of the future and that, in fact,
16 is the difficulty in projecting into the future.

17 I guess the value that I see in it is you
18 take the best knowledge you have available at that
19 time, look and see what kind of problems you might have
20 in the future and, on that basis, then determine what
21 sort of actions might be necessary to deal with at
22 least what you can anticipate at the present time.

23 Clearly we can't deal with what we can't
24 anticipate.

25 MS. MURPHY: If that is the question, it

1 is my view he has already asked that question and Dr.
2 Campbell has already answered it.

3 THE CHAIRMAN: I would tend to agree, Mr.
4 Hanna.

5 MR. HANNA: Fine, Mr. Chairman.

6 THE CHAIRMAN: We are nearing five
7 o'clock, is this a convenient time to --

8 MR. HANNA: If I can quickly flip through
9 some pages here, I might just have two or three last
10 questions that I'd like to ask.

11 THE CHAIRMAN: Very well.

12 MR. HANNA: I would like to just -- there
13 is just a couple of other tables in his witness
14 statement that I would just like to deal with and I
15 think that should be it, Mr. Chairman.

16 Q. Dr. Campbell, can we turn to page 232
17 of your witness statement, please?

18 DR. CAMPBELL: A. Okay, I have it.

19 Q. Can you explain why in the
20 northcentral region the dominant herbicide in use is
21 glyphosate, according to your table I believe it is
22 about 80 per cent or over 80 per cent of the area
23 treated; whereas in the northwestern region it accounts
24 for less than 25 per cent of the area treated?

25 A. I would have to assume that it is a

1 question of different sites. The point we have made
2 earlier is that 2,4-D and glyphosate are used on
3 different types of sites and I would assume that in
4 that particular year, 1986, northcentral region had a
5 higher proportion of sites which required glyphosate
6 for tending and whichever other northwest region had a
7 higher proportion of sites that required 2,4-D.

8 Now, we might perhaps check. We have got
9 one person from northcentral region, Ms. Krishka, and
10 Mr. Iskra is from northwest region. They might be able
11 to elaborate on that.

12 Q. The advantage of a large panel.

13 MS. KRISHKA: A. Having worked in
14 northcentral region at that time I think I can tell you
15 in general terms northcentral region has a predominance
16 of mixed wood productive sites and, to my acknowledge,
17 northwestern region has -- is more of an upland sand
18 site.

19 Mr. Iskra?

20 MR. ISKRA: A. Yes, basically rather
21 coarse sand. I guess bedrock would be more
22 appropriate, a fair bit of that.

23 THE CHAIRMAN: That's pretty coarse, Mr.
24 Iskra.

25 MR. HANNA: I think some people in

1 northwestern Ontario might take offence to that, but --

2 MR. ISKRA: We have some very fertile
3 sites. There is some agriculture there, maybe close to
4 large bodies of water in proximity, for example,
5 Wabigoon Lake, the prehistoric watershed, if you may,
6 that is fairly -- mostly clay sites there, but
7 predominantly, especially in the Kenora and some
8 portions of Red Lake, it is fairly rocky.

9 MR. HANNA: Q. Now, Dr. Campbell, my
10 understanding was that you use 2,4-D on certain sites
11 to a large extent because it is a cheaper chemical to
12 use and, therefore, if it will do adequate control it
13 would be preferred to glyphosate; is that correct?

14 DR. CAMPBELL: A. Yes, you would if it
15 was going to do the job.

16 Q. But that's the major reason you
17 choose 2,4-D over glyphosate?

18 A. No, no. The main reason you would
19 choose it is whether it is the most -- it is going to
20 control the particular competition that you have.

21 Q. All right. I know you discussed that
22 in your evidence and I will go back to it.

23 MR. HANNA: One last thing, I would like
24 to deal with one of the other tables, Mr. Chairman,
25 I'll be finished.

1 Q. Can we turn to Table 234, please, Dr.
2 Campbell.

3 THE CHAIRMAN: Page 234?

4 MR. HANNA: Page 234, Mr. Chairman.

5 THE CHAIRMAN: Page 234.

6 MR. HANNA: Page 234, yes.

7 DR. CAMPBELL: I have it.

8 MR. HANNA: Q. Now, I believe the
9 purpose of this table is to put in perspective the
10 amount of herbicide use in some sort of reasonable
11 context; is that correct?

12 DR. CAMPBELL: A. That's correct.

13 Q. And I believe it was indicated, if
14 you look at the total -- the area treated with respect
15 to the total area in forest management, it's really
16 insignificant?

17 A. It's very small.

18 Q. Well, we won't go into statistical
19 significance. But it's very small, it's less than one
20 per cent.

21 Would you agree with me though that you
22 have to be very careful interpreting these types of
23 statistics, just straight aerial comparisons like this?

24 A. Yes. I mean, this was one reason why
25 I also broke it down, tried to get some indication of

1 the spacial distribution. As I pointed out, if you
2 have 6,700 hectares of it was in one chunk, that may be
3 quite different than having it in a number of 299
4 hectare chunks.

5 Q. And there is lots of other reasons
6 why it not be appropriate comparisons also, are there
7 not?

8 A. Probably.

9 Q. For example, are herbicides not
10 primarily used on the most productive and rich sites
11 where competition is the greatest and the return on
12 investment is the highest?

13 Mr. Galloway?

14 MR. GALLOWAY: A. There is no doubt they
15 would be used on the most productive sites. That
16 doesn't mean the return on investment will be the
17 highest there, because of the increased cost in that
18 analysis as well, of having to using the herbicides
19 compared to a site, for instance, a sand site you may
20 get a better return on investment on that medium
21 productivity site.

22 Q. Thank you. Mr. Buss, are these rich
23 sites not also the most productive and rich in terms of
24 wildlife?

25 MR. BUSS: A. Well, in that they usually

1 have great variety or diversity of vegetation on them,
2 they can be some of the most productive, but they are
3 not always the most productive because wildlife use a
4 combination of sites.

5 But if you want to say, in general, would
6 they be most productive of wildlife, I would say
7 because of the fact they have a great diversity -- tend
8 to have great diversity, they would be classed as
9 highly productive for wildlife too.

10 Q. Now, Dr. Campbell, back to this
11 question of the area comparisons. It seems in my view
12 that the most appropriate comparison is the comparison
13 between the area harvested and the area treated because
14 that is where the sort of activity is taking place.

15 And when I look at that, for example, in
16 the Thunder Bay District I think you give figures here
17 somewhere for the Thunder Bay District, I can't
18 remember where it is.

19 DR. CAMPBELL: A. The third item down.

20 Q. Yeah, okay. And it says that about a
21 quarter of the area actually was treated; is that
22 correct?

23 A. That's correct.

24 Q. So these are the most productive
25 sites, they are the areas being - how do you say - they

1 are producing the weeds from the forester's point of
2 view but the browse from the wildlife's point of view?

3 A. The most productive ones may not be
4 the ones that were harvested.

5 Q. No, the areas treated. I think Mr.
6 Galloway has just told us that the areas treated
7 generally are the rich sites; is that not correct?

8 MR. GALLOWAY: A. Yes, that is what I
9 said.

10 Q. So we have got -- if you will, we
11 have got the rich sites where - and perhaps Mr. Buss
12 can clarify this, if I'm wrong - the ones that produce
13 the most amount of browse and we have also got --
14 that's where we are concentrating our herbicide
15 applications?

16 DR. CAMPBELL: A. Yes, I guess that
17 would be correct.

18 MR. HANNA: I think that would be fine,
19 Mr. Chairman.

20 THE CHAIRMAN: Okay. Thank you.

21 Well, ladies and gentlemen, I think we
22 will go right into the scoping session if we might for
23 Panel 14.

24 MR. CASTRILLI: Mr. Chairman, if I might
25 I simply get clarification from Mr. Hanna that he'll be

1 all of tomorrow?

2 THE CHAIRMAN: Mr. Hanna?

3 MR. HANNA: Perhaps I could consult with
4 Mr. Castrilli on this, Mr. Chairman. I had as a result
5 of what happened before lunch, over lunch started to
6 contract things and I think we are all interested in
7 trying to proceed along as quickly as we can in this,
8 and I will speak to Mr. Castrilli and we will work it
9 out. I can appreciate his concern and we will get it
10 sorted out, but...

11 THE CHAIRMAN: Well, in any event, the
12 Board didn't intend to sit beyond, at the absolute
13 maximum, three o'clock in order that we can make our
14 various departure times.

15 If we in fact finish earlier than three,
16 because you finish earlier, then we will probably rise
17 at that time, for instance, if we finished at two or
18 something like that.

19 MR. CASTRILLI: The only reason why I
20 raise it, Mr. Chairman, is I simply want to give Ms.
21 Murphy and Mr. Freidin adequate notice of the documents
22 I want their experts to look at and if I can be advised
23 as to whether I would be starting tomorrow, that would
24 help me in helping them.

25 MR. HANNA: I think it's fair to say that

1 Mr. Castrilli will not be starting -- I think, given
2 the Board's -- before we were talking three o'clock and
3 much more reasonably I would be one o'clock, and I can
4 assure the Board I will probably go to one.

5 MS. MURPHY: Two points. If Mr.
6 Castrilli wants to give us our list of his list of
7 documents, we will be perfectly happy to take it now.

8 MR. CASTRILLI: I wanted to give them the
9 documents and I don't have them all reproduced and so
10 that's why I mentioned it.

11 MS. MURPHY: Right. The other point I
12 did want to mention, I'm a bit concerned about - this
13 may not be -- I'm a bit concerned about, for example,
14 Mr. Galloway who has to go back to Timmins tomorrow.
15 If he doesn't catch a four o'clock flight he won't get
16 back.

17 MR. MARTEL: He will get back.

18 MR. HANNA: Same flight.

19 MS. MURPHY: You're getting back.

20 THE CHAIRMAN: We can give you a certain
21 measure of assurance that Mr. Galloway will be at least
22 at the airport by four, I don't know if --

23 MS. MURPHY: He will feel much better,
24 Mr. Chairman. Thank you.

25 MR. HANNA: Mr. Chairman, does this add

1 on to my prize if we get them both to the airport...

2 THE CHAIRMAN: I don't know if that gets
3 you the prize, it just gets most parties to the airport
4 by that time, that's for sure.

5 MS. CRONK: Mr. Chairman, I wonder if I
6 can raise one final scheduling matter.

7 In the event, based on the calculations
8 that we have now heard, this panel's evidence is not
9 completed until Wednesday close to noon, would it be
10 possible to obtain some indication of the Board's
11 preference and MNR's position on it regarding the
12 commencement of Panel 14 as it affects the attendance
13 of other people.

14 THE CHAIRMAN: Well, it appeared to us
15 that if the evidence for this panel was not complete,
16 and that includes re-examination, until Wednesday
17 afternoon, it might not make much sense to have the
18 next panel start when we can really just put in, you
19 know, part of the day on Thursday. It would involve I
20 assume, Mr. Freidin, of having to bring in the entire
21 panel for a very limited period of time.

22 Ms. Blastorah?

23 MS. BLASTORAH: Mr. Chairman, are you
24 indicating not start at all, or just not start that
25 week?

1 THE CHAIRMAN: Well, we are not -- no,
2 no, no.

3 MS. BLASTORAH: I wondered.

4 THE CHAIRMAN: No, we are suggesting that
5 perhaps it might be better to start Panel 14 the
6 following week as opposed to trying to start next week.

7 MS. BLASTORAH: Mr. Chairman, I think
8 that that probably is a good idea. Our estimations as
9 to chief at this time are two to three days, and I
10 think that would give us an opportunity to finish the
11 lead the next week.

12 THE CHAIRMAN: That's right, because we
13 would not intend, I don't think before the summer
14 break, to go into cross-examination on Panel 14. It
15 would be unfair to the witnesses.

16 MS. BLASTORAH: That was something that I
17 had intended to raise at the scoping.

18 THE CHAIRMAN: So as long as we complete
19 the direct of 14 prior to rising, I think that would
20 satisfy the Board as to the progression.

21 MS. BLASTORAH: I think I can guarantee
22 that if we start with the four -- normal sitting week
23 the following week, there wouldn't any problem
24 completing the lead.

25 THE CHAIRMAN: And that is why we

1 mentioned earlier that towards the end of next week we
2 will deal with the satellite matter in any event
3 because we will probably have the time to do so before
4 we pack it in for this panel.

5 MS. BLASTORAH: Thank you.

6 MR. FREIDIN: Mr. Chairman, I was going
7 to ask whether next week you will be able to sort of
8 predict our future for the next months?

9 THE CHAIRMAN: Yes. Actually the
10 scheduling notice the Board approved a couple of days
11 ago or a day ago, it should be going out.

12 Mr. Mander, is that going to be going out
13 shortly?

14 MR. MANDER: Yes, it is.

15 THE CHAIRMAN: You should have it
16 probably before you leave this week.

17 MR. FREIDIN: If it has gone out I'm
18 going to have it before the end of the week.

19 THE CHAIRMAN: Well, you would have
20 copies; would you not, that you could probably pass on
21 to the parties.

22 MR. MANDER: Sure.

23 THE CHAIRMAN: We won't tell you what it
24 says, Mr. Freidin, you will have to wait with
25 anticipation.

1 THE CHAIRMAN: Panel, I think you don't
2 have to stick around for the scoping session. I don't
3 see any reason. You can be excused.

4 Thank you.

5 --- (Panel withdraws)

6 SCOPING SESSION

7 THE CHAIRMAN: Ladies and gentlemen, for
8 all of those who want to take part in the scoping
9 session, I think we can begin.

10 Ms. Blastorah, just before we do begin,
11 Mr. Mander just brought it to our attention that in
12 getting out the scheduling notice that we are
13 indicating he will have ready for you, we have to
14 ascertain the week that we will be on the satellite
15 hearing, and we mentioned earlier that we are
16 suggesting the week of September 25th, and I think that
17 we would like to set that week. I want to make it
18 quite certain that that is not up for debate when you
19 come back, Ms. Murphy.

20 MS. MURPHY: Certainly not from us. We
21 have no problem with either week.

22 THE CHAIRMAN: Okay. So what we are
23 going to do is, we will show it on the scheduling
24 notice as being in Dryden, although the location in
25 Dryden won't yet be settled because we haven't

1 ascertained the exact location. And this scheduling
2 notice will take us to the end of October.

3 MS. MURPHY: I'm sorry?

4 MS. BLASTORAH: To the end of October,
5 Mr. Chairman.

6 THE CHAIRMAN: Yes. And then we will
7 have another scheduling notice at some later time and,
8 of course, all of you parties realize that it is
9 subject to minor changes as needs arise.

10 MS. BLASTORAH: Mr. Chairman, one other
11 scheduling type item. Could we get some projections as
12 to possible cross-examination duration on Mr.
13 Kingsbury -- or Dr. Kingsbury and Mr. Ritter.

14 MS. MURPHY: I think the problem is this:
15 As you appreciate, we were talking about bringing Mr.
16 Kingsbury in in August and perhaps Dr. Ritter around
17 the same time.

18 It looks at this stage, as I understand
19 it, that you will be putting off cross-examination of
20 Panel 14, is that right, and that being the case I'm
21 just interested if possible in finding out how long
22 that cross-examination might be in order to determine
23 whether we have to put Kingsbury in before that
24 cross-examination starts or whether there might be
25 enough time in August to bring him in later?

1 THE CHAIRMAN: Well, it's hard to
2 determine that, Ms. Murphy, unless the parties provide
3 some assistance because of, I guess, the evidence of
4 Dr. Ritter.

5 You know, the cross-examinations on that
6 evidence, depending on what his direct evidence
7 consists of, may be extensive or otherwise.

8 MS. MURPHY: Yes. Actually I was sort of
9 looking at it the other way around. I was wondering if
10 we can determine how long people think they would be in
11 cross-examination of Panel 14, we could perhaps look at
12 starting that at the beginning of August and finishing
13 that before bringing in those other two witnesses,
14 otherwise --

15 THE CHAIRMAN: I think we might have a
16 better indication of that after the scoping session.

17 MS. MURPHY: That's fine.

18 THE CHAIRMAN: Let's go through the
19 issues and then perhaps maybe, based on that, counsel
20 could give some estimation. It may not be very
21 accurate at this stage, obviously.

22 MS. MURPHY: I appreciate that. Just as
23 long as people have a chance to think about it might
24 help us to figure out what would happen in August.

25 THE CHAIRMAN: Okay.

1 MS. BLASTORAH: Mr. Chairman, perhaps --
2 we've had some indication in past scoping sessions from
3 the Board of what their view of the matter is and
4 perhaps if we could begin with that, it might be
5 helpful before we get into issues raised by the
6 particular parties.

7 THE CHAIRMAN: Okay. Well, we have
8 reviewed the witness statements and the statements of
9 issue from both the proponent and the other parties and
10 we have the following preliminary views, subject to
11 what counsel may have to say.

12 It appears to us, firstly, that there is
13 not any dispute by any of the parties with respect to
14 paragraphs 9, 11, 12, and 47 of the Ministry's witness
15 statement or statement of issues and, therefore, it
16 would seem reasonable that the Ministry does not spend
17 very much time, if any, on those topics.

18 And presumably there will be no
19 cross-examination from any of the parties on any of
20 those topics either.

21 Now, with respect to paragraph 7 which
22 deals with the forest access road categorization
23 evidence, this some extent seems to the Board to be
24 duplicated in two of the papers, at least to some
25 extent; the one paper by Mr. Tenaglia and, secondly,

1 the paper by Adamson.

2 And what we are suggesting
3 is, is that when you are dealing with the
4 categorization and the description of the various types
5 of roads; primary roads, secondary roads, tertiary
6 roads, et cetera it really should only be dealt with by
7 one of them rather than a repetition of the treatment
8 that both gave in their respective papers. So we think
9 there can be a little bit of time saved in terms of
10 that reorganization.

11 With respect to another area where we
12 think perhaps some substantial time can be saved; that
13 is, with respect to paragraph 27, and paragraph 27
14 deals with the construction of bridges. On that
15 particular issue there appears to be no real dispute by
16 any of the parties as to that type of evidence.

17 Now, we fully realize that the parties
18 are interested in the siting of the bridges and water
19 crossings and that kind of thing. We are dealing in
20 this particular paragraph with the actual construction,
21 and I don't think there is much dispute on the
22 construction aspects of the bridges.

23 MS. BLASTORAH: Well, if I could just
24 address that point, Mr. Chairman, I would point out
25 that Forests for Tomorrow in their item No. 4 indicates

1 that they are intending to cross-examine the witnesses
2 on the adequacy of the guideline or the environmental
3 guidelines for access roads and water crossings with
4 regard to the how effective those are in protecting
5 negative environmental impacts for access.

6 THE CHAIRMAN: Well, would that not be
7 really under paragraphs 22 and 23 and 24 where we are
8 dealing with water crossings, location and design as
9 opposed to the actual sort of engineering-type data on
10 construction of bridges themselves.

11 MS. BLASTORAH: Well, it is -- I would
12 just point out that it's very difficult to make that
13 clear division. We certainly don't want to go into
14 evidence that nobody is disputing. However, the
15 guideline really is an operational manual and it does
16 deal with how these structures are built and a large
17 part of the mitigation of the effect -- the potential
18 effects involves not only the design but the actual
19 construction practices. And certainly our intent is to
20 deal with that aspect, the construction aspect in
21 relation to mitigation.

22 That is our intent; it's not our intent
23 to deal with construction just to show how these are
24 built, we are not here to talk about how --

25 THE CHAIRMAN: Okay, that was the Board's

1 concern in that. We don't know what your slide
2 presentation will exactly consist of in terms of the
3 slides you wanted to present. But, again, if the
4 slides deal with strictly the construction aspects of
5 the bridges, we are not sure that it isn't already
6 adequately covered in the witness statement itself. It
7 is explained verbally, we think fairly comprehensively.

8 MS. BLASTORAH: Mr. Chairman, it
9 certainly isn't our intent to make the Board experts in
10 bridge and water crossing construction and the evidence
11 isn't going to be technical in that sense; it is going
12 to focus on the mitigation aspects of construction and
13 good practices aspects in that regard.

14 And I could indicate to the Board that we
15 are not intending to try and cover the same material
16 that is in the evidence, in fact these guidelines are
17 new as are some of the other mitigation practices, and
18 our focus is going to be on material not covered in the
19 written material.

20 THE CHAIRMAN: Okay. All right. Well
21 beyond that, the Board feels that most of the other
22 issues addressed in the Ministry's statement of issue
23 are the subject of interest to both the Board and the
24 other parties and it is likely that the other parties,
25 as they have expressed and indicated in their

1 statements of issue, would want to both hear evidence
2 on those issues and cross-examine on most of those
3 issues.

4 Certainly to some of the parties, such as
5 Mr. Edwards and his client, this panel's evidence is
6 extremely important and we wouldn't like to restrict in
7 any way parties which have a particular interest
8 involving access into preventing them from addressing
9 their concerns to the fullest extent that they feel is
10 necessary.

11 So those were the areas that we felt were
12 perhaps areas which could be given some consideration.

13 We realize that we are not cutting out
14 very much of what is presented, but it is an important
15 panel. The Board might also add that we also don't
16 feel that Panel 15 or 16 will be that productive in
17 terms of cutting out a number of issues, because once
18 again we are dealing with some of what can be
19 considered the important panels in the context of this
20 case.

21 That doesn't mean to say by any means
22 that we don't want statements of issues and a focussing
23 by the parties on specific issues. I guess what we are
24 trying to say is that we view the scoping exercises
25 useful in getting the parties to focus upon issues

1 which concern them. We view it as useful in allowing
2 the proponent to understand and better understand what
3 issues interest the other parties so that they can
4 better construct and present their direct.

5 Where we can, we want to avoid
6 duplication and we want to maximize the use of hearing
7 time.

8 I don't know if that addresses what the
9 Board's concerns are with this particular panel or not,
10 but we don't have anything further to say. But we are
11 willing to hear of course from the parties.

12 MS. SEABORN: If I might just intervene a
13 moment, Ms. Blastorah. On the issue of construction of
14 bridges, Mr. Chairman.

15 I'm reviewing our statement of issues. I
16 think that we were not specific enough in identifying
17 that as an area for cross-examination. I had lumped
18 that topic in with water crossings in general. As you
19 can imagine, bridges are an important matter for my
20 client in terms of water crossings and water quality.

21 And so we will be cross-examining on that
22 area and if Ms. Blastorah wants further information on
23 the specifics of that, I would be happy to speak with
24 her after the session.

25 MS. BLASTORAH: I think that would be

1 helpful. We do intend to deal with bridges in the
2 direct evidence again in relation to the mitigation
3 side of construction.

4 But perhaps I could speak to Ms. Seaborn
5 after the hearing and --

6 THE CHAIRMAN: Okay. We just saw in
7 glancing through it ourselves a possible area of
8 duplication; in other words, that would be covered in
9 the water crossing evidence, and we just didn't see the
10 necessity for it being dealt with as a specific
11 independent topic.

12 But to the extent that you feel it should
13 be covered, put in the evidence.

14 MS. BLASTORAH: Again, Mr. Chairman, we
15 are not going -- we are not intending to cover material
16 that has already been dealt with in the written
17 material.

18 THE CHAIRMAN: Okay. Any of the parties
19 have any specific additional concerns? .

20 MR. CASSIDY: Yes, Mr. Chairman. I noted
21 your comments at the outset that there are some
22 portions or some paragraphs that parties indicated that
23 no further oral explanation was required and you went
24 on to say - and I believe that was in respect of
25 paragraphs 9, 11, 12 and 47 - that, in addition, you did

1 not expect cross-examination on that since the parties
2 indicated that they did not want a further oral
3 explanation.

4 It was my understanding of the Board's
5 scoping ruling, and I just had the opportunity to
6 review it again, that did not preclude the parties even
7 though they indicated that, it did not preclude them
8 from cross-examining.

9 And I can indicate on behalf of my client
10 there are some paragraphs which I indicated as requiring
11 no further oral explanation that I'm still in the
12 process of retaining and obtaining expert advice on
13 that I may in fact reserve the right to do that.

14 However, it has also been made clear to
15 me that it is not necessary to have the Board's time
16 taken up with actual explanation in chief by the
17 witnesses, it would be simply a matter of my client
18 cross-examining on those paragraphs.

19 THE CHAIRMAN: Well, I think we should
20 make it clear. We are not in a possible, I don't think
21 we have the statutory right to do so under the
22 Statutory Powers Procedure Act, to preclude
23 cross-examination on any matter that is relevant to
24 this case. We are not attempting to do that and if I
25 did state that we would be intending to preclude

1 cross-examination, that was clearly an error.

2 MR. CASSIDY: Thank you, Mr. Chariman.

3 THE CHAIRMAN: We would not. But again,
4 in an area where no further direct is required other
5 than what is contained in the witness statement, we
6 would not expect cross-examination to go beyond that.

7 MS. BLASTORAH: Mr. Chairman, if I could
8 just ask one follow-up question. Perhaps this can be
9 something that can be dealt with outside the scoping
10 session perhaps. I could just ask Mr. Cassidy if he
11 could advise us if there are other issues that we could
12 be helpful on in lead that he's awaiting advice from
13 his client or his experts on, I'm sure he will advise
14 us.

15 MR. CASSIDY: I was just about to rise
16 and indicate. The paragraphs I had in mind were
17 specifically those dealing with paragraphs 29 through 49
18 which are essentially requests for terrestrial,
19 wildlife and aquatic impacts which I'm still seeking
20 advice on in that respect.

21 So those are the paragraphs I had in mind
22 and if Ms. Blastorah can give me a call before August
23 8th, I'm sure that we can work that out and perhaps
24 assist her if we feel that that is appropriate to do
25 so.

1 THE CHAIRMAN: Very well.

2 MS. BLASTORAH: Thank you.

3 THE CHAIRMAN: Mr. Edwards, do you have
4 any comments to make with respect to this?

5 MR. EDWARDS: Mr. Chairman, it's
6 difficult for me to estimate how long cross-examination
7 would be. I'm going to give a guess of three days on
8 behalf of my client, and that is a guess that I will
9 ask not to be held to because we haven't received
10 responses to our interrogatories yet and I think the
11 length of cross-examination will be impacted by that.

12 There is something else that is happening
13 is this: I'm advised, and I believe Mr. Freidin is
14 aware of this, there's a study underway this summer and
15 in which the MNR, NOTOA and I believe the MTR are
16 involved which will have some impact on the information
17 that is available to deal with these issues. Some of
18 the information arising out of that study may become
19 available throughout the course of the summer and that
20 may give Mr. Freidin more evidence that he may wish to
21 lead and it may also give me more material to
22 cross-examine on, so I'm finding it a little difficult
23 to estimate.

24 THE CHAIRMAN: Well, with respect to
25 evidence concerning this hearing that arises during the

1 course of the hearing, and we all must appreciate there
2 are various studies and certain things that are going
3 on in terms of policies being developed, guidelines
4 being developed, et cetera. During the course of a
5 two-year plus hearing things may come up.

6 If things arise during the course of the
7 hearing which are relevant to what we have been
8 discussing, I think it would be incumbent upon the
9 Board to slot in at some future time, as they become
10 available and if they are relevant and important, some
11 time to deal with them.

12 MR. EDWARDS: Yes. It does give me --
13 knowing that study exists gives me some difficulty in
14 estimating the time that I may be.

15 With respect to the issue of the starting
16 date for Panel 14, it is my understanding -- would it
17 now appear that Panel 14 is likely to start on June
18 26th?

19 THE CHAIRMAN: Yes, Panel 14 would likely
20 start not next week but the following Monday.

21 MR. EDWARDS: That is Monday the 26th?

22 MR. CASSIDY: June 26th.

23 THE CHAIRMAN: The 26th. And hopefully
24 we would finish direct evidence that week and not start
25 cross-examination until August 8th.

1 MR. EDWARDS: Having a break is very good
2 from my point of view, it allows us to obtain some
3 further information.

4 I have one particular problem with
5 respect to the 26th, is that I have got a commitment in
6 Toronto that I am actually unable to be in Thunder Bay,
7 I will have somebody else attending. But with respect
8 to the issue of the qualification of witnesses - I
9 notice Mr. Hanna was raising this a bit earlier - I may
10 wish to make some submissions at some time on the way
11 witnesses are qualified for this panel.

12 And, obviously, if I'm not here on the
13 26th I may miss my opportunity as I think I missed it
14 on a couple of other previous panels.

15 My concern is this, Mr. Chairman, if a
16 witness is qualified as an expert in "resource
17 management", it seems that there is little upon which
18 the witness may not opine and I'm a little concerned
19 about -- I think the Board is quite able to deal with
20 that in terms of, you know, giving weight rather than
21 admissibility. I don't think that that is necessarily
22 my problem.

23 My concern is that when and if my client
24 wishes to call certain witnesses who do not have a lot
25 of letters behind their name but happen to have many

1 years of experience, is there going to be a problem
2 with those people giving opinion evidence?

3 THE CHAIRMAN: No, there will not be any
4 problem because it is a long-standing practice of the
5 Board that in qualifying witnesses we look at not only
6 formal education but also practical experience related
7 to the field in which they are being sought to be
8 qualified.

9 MR. EDWARDS: I appreciate having that
10 clarified. That gives me a great deal of comfort, Mr.
11 Chairman.

12 Beyond that, I have little else to say
13 other than I expect three days as a good guess.

14 THE CHAIRMAN: Very well.

15 MR. FREIDIN: Does that mean that we can
16 anticipate there will be no challenge to qualifications
17 of witnesses in this panel?

18 MR. EDWARDS: I will have to give that a
19 bit more thought and I will let Mr. Freidin know. It
20 probably does mean that, but I want to think about it a
21 bit more.

22 MR. FREIDIN: Thank you.

23 MR. HANNA: Mr. Chairman, if I might.
24 Mr. Edwards has brought up an issue that I have sort of
25 been holding back on but this may be an appropriate

1 time just to take a moment just to talk about it.

2 It would seem that the Board might want
3 to consider using the scoping sessions also to deal
4 with this matter of the expert witnesses; in other
5 words -- the only reason I say that, I think many
6 parties with the difficulty of scheduling and whatever,
7 trying to be at the hearing when the witnesses are
8 being qualified makes it very difficult and I think --

9 MR. CASSIDY: Well, I have to jump in
10 there because this is an example of the informality
11 which we want in the scoping sessions and the parties
12 can feel free to deal with this, and that is a matter
13 that should be dealt with formally on the record at
14 prescribed times. This is a hearing -- this scoping
15 session was moved ahead to accommodate counsel and it
16 shouldn't be --

17 THE CHAIRMAN: No, Mr. Hanna, the
18 qualification of witnesses is no different than the
19 witnesses presenting evidence themselves; in other
20 words, that is part of the formal hearing process, it
21 is usually dealt with at the outset of the calling of a
22 particular panel. That is the appropriate time for it,
23 that is when parties should be present if they wish to
24 challenge the witnesses and we go from there.

25 We are not going to deal with an issue

1 like that without all of the parties being present and
2 the witnesses being present because the witnesses have
3 to be around to be questioned and answer any challenge
4 in fairness to them.

5 MR. HANNA: Thank you, Mr. Chairman.

6 THE CHAIRMAN: Ms. Blastorah?

7 MS. BLASTORAH: Mr. Chairman, I have just
8 a few questions of clarification, actually a few points
9 that I would like to raise at this juncture as well
10 which may save some time during the hearing.

11 Panel 14, as has been the case with I
12 think Panels 10, 11 and 12, will be treading to some
13 extent on area that will be covered by Panel 15, and as
14 has been the case with those other panels, there will
15 be some gray areas where it won't be clear to make a
16 distinction as to which panel should be addressing the
17 issue.

18 And we have taken the position I think in
19 the other panels since Panel 12 -- or Panel 10, rather,
20 that to the extent they are able, the witnesses will
21 answer questions related to planning issues in their
22 area and that's the position we intend to take again in
23 Panel 14.

24 However, I would just point out that we
25 are going to attempt at the beginning of the panel's

1 evidence to outline the areas that they will be
2 responsible for dealing with and the areas that we feel
3 are more properly left to Panels 15 and 16, for
4 example, and I hope that will be helpful to the
5 parties.

6 I would just indicate that now because I
7 notice that some of the issues raised in the statements
8 of issue directly or indirectly raise matters that will
9 be addressed by Panel 15, and I just want to point out
10 that we will attempt to clarify that and it is a gray
11 area, so I hope that it will be helpful when we do
12 that.

13 THE CHAIRMAN: All right. The Board
14 appreciates that and I think what the parties are more
15 interested in ascertaining is, is that if it is not
16 going to be dealt with by the witnesses in 14 it will
17 be dealt with by the witnesses in 15.

18 They won't get to 15 and be met with the
19 argument: You should have, you know, addressed the
20 question in 14. As long as it is addressed and it is
21 clearly indicated that the Ministry will be calling
22 witnesses to deal with particular issues in a
23 subsequent panel, I think that's sufficient.

24 MS. BLASTORAH: Mm-hmm. And again --

25 THE CHAIRMAN: We would expect you of

1 course to honour that undertaking and call those
2 witnesses or else we may assist you.

3 MS. BLASTORAH: In an effort to be
4 helpful in that regard, perhaps I could just indicate
5 at this point that one way perhaps of drawing the
6 distinction is that the evidence in Panel 14 will touch
7 on planning-related or timber management planning
8 process-related issues insofar as they deal with
9 effects and mitigation aspects of road building or
10 access, and I think the more general planning issues
11 are properly the subject matter of Panel 15.

12 Now, I certainly don't want to go into a
13 long explanation at this juncture, I don't think this
14 is the place to do that, but in an effort to help the
15 parties in preparation of their cross-examination and
16 so they don't come here and are frustrated by a lot of
17 jumping up and down telling them that that's not to be
18 dealt with in this panel, I hope that's of some
19 assistance.

20 THE CHAIRMAN: I think it would be very
21 helpful if at the outset you indicate clearly the ambit
22 of the particular witness' testimony so that the
23 parties do know that up front.

24 MR. FREIDIN: Mr. Chairman, we are
25 putting together something very similar to what we did

1 in Panel 13 with the boxes and we are going to try to
2 colour-code it and say: We think this is gray and this
3 is...

4 THE CHAIRMAN: It might be helpful if you
5 distributed that to the parties ahead of presenting it
6 to the Board as well, so that they can structure their
7 focus on that to the extent possible.

8 MS. BLASTORAH: I will attempt to do
9 that, Mr. Chairman. Because of the speed with which
10 this panel has come on, we are having a little trouble
11 on our graphics and --

12 THE CHAIRMAN: Don't knock the speed, Ms.
13 Blastorah.

14 MS. BLASTORAH: Oh, I'm not.

15 MR. FREIDIN: I like it.

16 MS. BLASTORAH: I will attempt to do
17 that; however, I would point out I don't know how
18 helpful the simple diagram will be without the
19 explanation that is going to go with it.

20 THE CHAIRMAN: Okay.

21 MS. BLASTORAH: What it is our intent to
22 do is have both an overhead that will be addressed at
23 the outset of the panel's evidence, as well as some
24 kind of a blowup that can be left up during the panel's
25 evidence so that the witnesses can refer to it at

1 various points in their evidence and indicate which
2 aspect of that flow chart they are addressing at a
3 particular time and the Board and the parties will be
4 able to see how that particular item fits into the
5 bigger picture.

6 So I trust that will be helpful to the
7 Board, I hope so, and that will also be helpful to the
8 parties.

9 Just turning to the statements of issues
10 we have received from the parties, perhaps I will deal
11 with Mr. Edwards' first because I know he has come in
12 just for this and may be anxious to leave.

13 I appreciate his estimation on the
14 projection for cross-examination and I know that it is
15 difficult for him to make that projection because we
16 received, I think it was 45 interrogatories from NOTOA
17 and I can tell him that we are hoping to have those
18 answers out to him tomorrow.

19 The interrogatories were received
20 approximately two weeks late and given the number of
21 interrogatories, it did take a considerable amount of
22 work to get those responses together. So I am hoping
23 that those will be to him tomorrow.

24 I have already made the caution that
25 there is going to be some overlap between Panel 15 and

1 this panel's evidence and I think that's something that
2 he is aware of and a lot of his issues raised in the
3 statement of issue do enter into areas that are timber
4 management planning issues. So I just hope that he
5 will attempt and I am sure he will attempt to draw that
6 line to the best of his ability.

7 That's basically -- I think that the
8 NOTOA statement of issues was quite helpful and we are
9 taking that into account in preparing our
10 evidence-in-chief.

11 With regard to the statement of issues
12 from Forests for Tomorrow, I do have one question in
13 particular and that's with regard to the very last item
14 on their statement of issue which addresses the
15 question of roadside herbicide use.

16 I have some concern about that issue in
17 particular and I am glad to have the opportunity to
18 raise it at this time before Mr. Castrilli
19 cross-examines Panels 12/13 because I can't help
20 feeling that that's not really properly an access
21 issue.

22 The use of herbicides, wherever they are
23 used, be it roadsides or elsewhere, is really properly
24 control or a maintenance-type issue, and I think that
25 cross-examination on that issue is really more properly

1 the subject matter of Panels 12 and 13. It is not
2 really an access issue.

3 So I would point that out and hope that
4 Mr. Castrilli will take that into account or Ms.
5 Swenarchuk, I am not sure who is going to be doing the
6 cross-examination.

7 MR. LINDGREN: Unfortunately, I did not
8 assist Ms. Swenarchuk in preparation of this statement
9 of issues. I am unclear as to what she meant by
10 roadside herbicide use. However, it is my
11 understanding that that particular activity is a
12 necessary ancillary to the road construction program
13 and perhaps, in that sense, it is a proper issue to be
14 dealt with.

15 THE CHAIRMAN: Well, it occurs because
16 there is a road and it is adjacent to the road, but
17 really the impacts arising from herbicide use, would
18 that not properly be the subject matter of Panels 12
19 and 13?

20 MR. LINDGREN: They may well be, Mr.
21 Chairman. I will contact Ms. Swenarchuk this evening
22 and find out what she meant.

23 THE CHAIRMAN: You know, it appears at
24 first glance to the Board that Ms. Blastorah is correct
25 in suggesting that that should be dealt with in Mr.

1 Castrilli's cross-examination of this panel.

2 MS. BLASTORAH: And, Mr. Chairman,
3 perhaps just again so that Mr. Lindgren can advise Mr.
4 Castrilli of this, we are not going to have an expert
5 on the Panel 14 -- among the Panel 14 witnesses that is
6 an expert in pesticides or herbicides use, and I would
7 caution that there isn't going to be anybody there that
8 can answer those kinds of questions.

9 THE CHAIRMAN: Nor would you be expected
10 to have one on dealing with that.

11 MS. BLASTORAH: No.

12 THE CHAIRMAN: Excuse us a moment.

13 ---Discussion off the record

14 MS. BLASTORAH: Mr. Chairman, in fairness
15 to Mr. Castrilli, perhaps he -- I notice he is not in
16 the room here. It might be wise to give him the
17 opportunity tomorrow morning to address this because
18 granted he will have the weekend, I am taking from the
19 schedule, to prepare any additional questions, but I
20 think he should be afforded the opportunity to --

21 THE CHAIRMAN: I mean, we can understand
22 how he perhaps arrived at putting it in there because
23 herbicides are traditionally used almost on an annual
24 basis to knock back brush and whatnot when roads are
25 constructed, but surely the impacts arising from the

1 use of herbicides is properly the subject matter of the
2 witnesses that comprise this panel.

3 MS. BLASTORAH: That was my point, Mr.
4 Chairman. The location of the effects is really not
5 the issue.

6 THE CHAIRMAN: That's right.

7 MS. BLASTORAH: It is the effects and the
8 mitigation techniques are proper.

9 MR. LINDGREN: Mr. Chairman, I think we
10 are making the assumption that Ms. Swenarchuk meant
11 herbicide effects. She may well be concerned about the
12 planning aspect of where or why.

13 MS. BLASTORAH: Well, again, Mr.
14 Chairman...

15 MR. LINDGREN: I am not clear. I don't
16 think we should proceed until I talk to Ms. Swenarchuk.

17 MS. BLASTORAH: I think perhaps the
18 appropriate thing to do would be to advise -- if Mr.
19 Lindgren could advise Mr. Castrilli of this and perhaps
20 he could consult with Ms. Swenarchuk and address the
21 matter tomorrow morning.

22 THE CHAIRMAN: All right. But I think it
23 is fair to say that there will not be a witness on
24 Panel 14 to deal with the effects of herbicides.

25 MS. BLASTORAH: Nor for that matter, Mr.

1 Chairman, the planning aspect of herbicide use. That,
2 again, is the subject matter of Panels 12 and 13 and
3 those -- any applications of herbicides would be
4 planned in the same way as the methods that have been
5 described by this panel and these are the witnesses
6 that would be able to address it.

7 THE CHAIRMAN: Including the use for
8 roadside?

9 MS. BLASTORAH: That's my understanding,
10 Mr. Chairman.

11 MR. FREIDIN: All right. And not to be
12 misleading, there is evidence on the planning in
13 relation to herbicides in Panel 15, as everyone is
14 aware.

15 THE CHAIRMAN: Okay.

16 MS. BLASTORAH: Yes. And, again, that
17 would not be this panel.

18 THE CHAIRMAN: Very well.

19 MS. BLASTORAH: Again - and I have
20 mentioned this already so I don't want to belabour the
21 point - there have been some issues raised in the
22 Forests for Tomorrow statement of issue which touch on
23 monitoring and timber management planning issues and
24 those will be dealt with by future panels.

25 We will attempt to draw that line and we

1 trust that the parties will do so as well in their
2 cross-examination.

3 With regard to OFAH, we have already had
4 some discussion of the issue of qualification of
5 witnesses, that was one of the questions that I had
6 intended to raise. Perhaps I could just ask whether
7 there are particular witnesses, but perhaps it might be
8 more appropriate to discuss that with Mr. Hanna outside
9 of this forum.

10 The same comments with regard to evidence
11 of other panels.

12 One comment I would make in regard to the
13 OFAH statement of issue, the additional issues which
14 are set out on page 2. The first item, and I only
15 raise this because it is something that has come up I
16 think in all of the panels recently, is the question of
17 what is properly the subject matter of our evidence as
18 opposed to Mr. Hanna's evidence.

19 And rather than get into another wrangle
20 during the hearing time and disrupt that, perhaps I
21 could just briefly comment that I think it will be our
22 position that what is done in other jurisdictions, if
23 Mr. Hanna wants to raise that, whether other methods
24 are more appropriate or not is more properly, in our
25 feeling, a subject matter for his case.

1 I notice he has put that down as
2 additional issues and I think, you know, I have to wait
3 and hear what his questions will be, but I anticipate
4 it may be the same problem that we have encountered in
5 the past.

6 MR. HANNA: Mr. Chairman, I appreciate
7 very much Ms. Blastorah's directions and the direction
8 of the Board on this matter. As I think we are all
9 aware, I am not exactly an expert at this particular
10 exercise. And I very much have taken into account the
11 direction the Board has given and the proponent has
12 given in this respect.

13 The difficulty I am faced with, and I am
14 really looking for what direction the Board might give
15 me in this, is that it is very difficult for me to call
16 witnesses with the - how do I say - the hands-on
17 experience because the people who have hands-on
18 experience are the people within the Ministry in terms
19 of making these decisions or making -- and I think the
20 Board has heard me say this before and it is difficult,
21 I am sort of grappling with it.

22 They may have very good reasons for
23 rejecting those other alternatives and it is difficult
24 for me to know what those -- it may be that they come
25 forward and say: Well, this is why we rejected it and

1 I may never decide to call evidence on that because
2 they may convince me in their opinions that it just
3 isn't appropriate to consider that type of approach.

4 THE CHAIRMAN: Well, they are entitled in
5 presenting their case, Mr. Hanna, to present it in the
6 fashion they feel is necessary. They have to convince
7 this Board that what they are doing is appropriate, if
8 they want a favourable decision. And if they choose to
9 compare what they do with other jurisdictions, that is
10 their choice.

11 If they choose not to do so, it is your
12 choice in either cross-examination or in calling your
13 own evidence, to bring in - provided it is relevant -
14 to bring in evidence to show that what they are doing
15 is not being handled as favourably as it might be
16 somewhere else and to try and point out a defect in the
17 way that they are handling things in this jurisdiction.

18 But it is not incumbent upon the
19 proponent to call all of this comparative evidence if
20 they feel it is not necessary.

21 MS. BLASTORAH: Mr. Chairman, perhaps I
22 could just point out for Mr. Hanna's assistance -- I
23 certainly am not intending to indicate we are going to
24 try and limit his cross-examination, and that hasn't
25 been our intent to date.

1 I just -- I only raised it because, as he
2 indicates, he is not a lawyer and we have had some
3 discussions about procedural-type things before. I was
4 hoping we could perhaps short circuit it to some extent
5 by dealing with it now.

6 If he wishes to put questions to the
7 witnesses on cross-examination, we will deal with them
8 at that time. I think he is aware of our concern. I
9 just wanted to express our concern to him again and I
10 am sure he will take that into account in forming his
11 questions. And to the extent they are proper questions
12 for cross-examination, we have no problem with them.

13 THE CHAIRMAN: I think what we are
14 saying, Mr. Hanna, is it is not incumbent upon the
15 Board to order the proponent to call evidence
16 specifically as to how other jurisdictions deal with
17 issues.

18 MR. HANNA: Mr. Chairman --

19 THE CHAIRMAN: It is their choice as to
20 whether they want to put that in, it is your choice to
21 ask them why they haven't considered something that may
22 be happening in another jurisdiction or whether or not
23 they even know something is happening in another
24 jurisdiction. And it may be your choice to call
25 evidence on your side of the case to point out why they

1 should have considered other things.

2 MR. HANNA: Just for the record, I was
3 not under the impression the additional issues was, if
4 you will, a compelling-type of statement. It was more
5 simply: These are types of issues that we want to have
6 investigated and if the proponent wishes to come
7 forward in their own evidence and provide that it may
8 truncate the need for cross-examination. I wasn't
9 trying to compel them.

10 THE CHAIRMAN: Yes, but the point is
11 these statements of issue are being constructed by the
12 parties based on the witness statements. Obviously
13 when you reviewed the witness statements you didn't
14 find that kind of evidence in there.

15 MR. HANNA: Right.

16 THE CHAIRMAN: And, therefore, I suppose
17 it is a natural assumption that they are not going to
18 call the evidence of which you are seeking.

19 MR. HANNA: I was just --

20 THE CHAIRMAN: At least to the extent
21 that it does not appear in the witness statements
22 because if you were going to call that kind of
23 evidence, Ms. Blastorah, we would expect it to be
24 outlined in the witness statement.

25 MS. BLASTORAH: Mr. Chairman, I certainly

1 didn't mean to make a large point of this, I was only
2 trying to be helpful to Mr. Hanna and I think he is
3 aware of our concern, and that's all I wanted to raise.

4 THE CHAIRMAN: Okay.

5 MS. BLASTORAH: Certainly we are not
6 trying to limit --

7 MR. HANNA: I would like to say I was
8 also trying to be helpful, Mr. Chairman.

9 THE CHAIRMAN: Yes, I am sure everybody,
10 and believe it or not the Board is also trying to be
11 helpful.

12 MS. BLASTORAH: I think those are
13 really -- that's the focus of our concerns. I think
14 the parties have tried to be helpful in their
15 statements of issue and we are attempting to take as
16 many of those issues, as we feel appropriate, into
17 account in our evidence-in-chief, and I hope that will
18 help to limit the cross-examination.

19 But perhaps if we could get some
20 projections at this stage now from the other parties,
21 even ballpark estimates, it might help Ms. Murphy and
22 the Board in planning the scheduling.

23 THE CHAIRMAN: Okay. Ms. Kleer?

24 MS. KLEER: A ballpark estimate is very
25 difficult because we haven't prepared any questions at

1 all. I don't know, I would say half a day at this
2 point but it might be half a day to a day, but no more
3 than that.

4 MS. BLASTORAH: Thank you.

5 THE CHAIRMAN: Mr. Edwards is three days
6 minimum.

7 Mr. Hanna?

8 MR. HANNA: I think the Board is aware
9 that there is another matter before another member of
10 the Board that is obviously going to impinge very much
11 on our participation at the hearing, and honestly I
12 haven't discussed it with my client. I have indicated
13 to the Ministry it could be four days, but I have to
14 say that that's extremely speculative.

15 THE CHAIRMAN: Okay. Well, at this point
16 I don't think we can go beyond that. Four days.

17 Ms. Seaborn?

18 MS. SEABORN: This is a long way off, Mr.
19 Chairman, but I will say our usual half a day.

20 THE CHAIRMAN: And can you speak, Mr.
21 Lindgren, on behalf of Ms. Swenarchuk?

22 MR. LINDGREN: In fact I posed this very
23 question to Ms. Swenarchuk last night and she was not
24 able at that time to provide me with an estimate.
25 However, I will pose the same question tonight and

1 hopefully I will get an answer, and as soon as I do get
2 an answer, I will provide that to both the Board and
3 the parties.

4 MS. BLASTORAH: Thank you. And perhaps
5 Mr. Cassidy could...

6 THE CHAIRMAN: Mr. Cassidy?

7 MR. CASSIDY: Not to be left out of the
8 ballpark, I will take a swing at half a day.

9 MS. BLASTORAH: A rough estimate then I
10 guess, Mr. Chairman, we are looking at --

11 THE CHAIRMAN: Maybe nine days.

12 MS. BLASTORAH: Nine, ten days depending
13 on what we hear from Forests for Tomorrow.

14 THE CHAIRMAN: Well, actually it may be
15 more if Forests for Tomorrow is two or three days.

16 MS. BLASTORAH: That could be. It could
17 be two weeks, Mr. Chairman, two full weeks or three
18 sitting --

19 MR. FREIDIN: Three working weeks.

20 MS. BLASTORAH: Three working weeks, yes.

21 THE CHAIRMAN: Okay. And we have lost
22 one week in August anyways, the first week, we are not
23 coming back until the 8th, and then we want to fit in
24 the two witnesses.

25 MR. FREIDIN: I think, just based on what

1 we have heard, you are likely to see Mr. Kingsbury here
2 on the 8th. He has to be in and out of here in August.

3 THE CHAIRMAN: Okay. So we would hold
4 off the cross-examination until after Mr. Kingsbury.

5 MR. FREIDIN: And then depending on what
6 the arrangements are with Mr. Ritter, and I can't tell
7 you about that, we may have Dr. Ritter before we start
8 back with the 14 to finish off I guess 12 and 13.

9 MS. SEABORN: Mr. Freidin, could we have
10 Dr. Ritter and Mr. Kingsbury together as a mini-panel?
11 I am just thinking in terms of the cross-examination,
12 it would be difficult for some people to cross-examine
13 those two separately, I would think.

14 MS. MURPHY: Well, I have thought about
15 that and I have canvassed that possibility. I am not
16 entirely sure if we can do it. Dr. Ritter's
17 availability might be a problem to sit for the same
18 length of time.

19 THE CHAIRMAN: No, but he would be
20 available in August; would he not? Dr. Ritter would be
21 available some time in August surely?

22 MS. MURPHY: I think so. But my problem
23 is, as I say, I have canvassed that with him and I have
24 to talk to him again. If we put them together the
25 problem is that they are both there for the full time

1 and that -- and I have to get back to him and find out
2 what we can do in August. I mean, it would certainly
3 be a good idea if we can do it, I would like to.

4 THE CHAIRMAN: Well, yes, but there is a
5 more fundamental issue involved and that is trying, as
6 Ms. Seaborn indicates, separating the evidence between
7 the two of them. There is an overlap or there could
8 well be an overlap in terms of the questioning that
9 would be posed by the other parties to those two
10 witnesses, so it would seem to the Board that they
11 really should be heard as a unit.

12 MS. MURPHY: Well, as I say, that is our
13 preference and I am trying to organize it and I will
14 have to let you know how that goes.

15 MR. LINDGREN: That's certainly our
16 preference, Mr. Chairman, and I support Ms. Seaborn's
17 submission. And in fact I believe Mr. Castrilli has
18 been proceeding on the assumption that they will be
19 called together because of the obvious overlap in the
20 evidence.

21 THE CHAIRMAN: Well, I think that the
22 Board would be flexible and I think the parties would
23 cooperate under the circumstances if we had to fit the
24 two of them in and interrupt the cross-examination with
25 respect to the panel's evidence.

1 MS. MURPHY: Oh, I see.

2 THE CHAIRMAN: So it is a matter of
3 fitting them in as a unit where you can, and I think
4 unless there is any major objection from the parties,
5 we would proceed on that basis.

6 Does anybody object to the
7 cross-examination being interrupted when those two
8 witnesses are available under the circumstances?

9 MS. BLASTORAH: Mr. Chairman, perhaps if
10 I could just ask a point of clarification. Do you mean
11 then that we will start Panel 14 cross-examination and
12 then interrupt it at some point in August?

13 THE CHAIRMAN: Well, for instance, if
14 they can't be available until the 20th of August or
15 something like that, we would start the
16 cross-examination on the 8th, continue on until we had
17 to and then, if they were available, depending on when
18 they are available, if they could be fit in at the end
19 of the cross-examination, fine, but they may not be
20 available.

21 MS. MURPHY: That's right, and as I
22 said --

23 THE CHAIRMAN: Except for a certain
24 period of time. For instance, they could be available
25 on the 12th of August and, you know, no other time.

1 Well, we don't want to waste between the 8th and the
2 12th just because they are not available until the
3 12th.

4 MS. KLEER: Would we be expected to
5 cross-examine directly after they had finished their
6 direct evidence? The only problem I have with that is
7 the question of the funding, because then we have to be
8 here the whole time given the fact that we can't get
9 the transcripts back in time.

10 THE CHAIRMAN: Well, that would generally
11 be the case. I appreciate your concerns, but it
12 doesn't make much sense to have them give their direct
13 and then have a gap of time and then bring them back
14 for cross.

15 MS. MURPHY: All I can do is tell you --

16 THE CHAIRMAN: But I think what we could
17 do in your case is we could put other parties on
18 first--

19 MS. KLEER: That would be helpful.

20 THE CHAIRMAN: --who the lack of the gap
21 would not be that material.

22 MS. KLEER: It is a three-day gap.

23 THE CHAIRMAN: That's right. And put you
24 on near the end to accomodate your particular concerns
25 in that regard.

1 MS. KLEER: I appreciate that.

2 MR. CASSIDY: I think that's in fact the
3 normal course, Mr. Chairman, is that several parties go
4 ahead.

5 THE CHAIRMAN: That's right.

6 MR. CASSIDY: I would like to remind Ms.
7 Kleer.

8 THE CHAIRMAN: Yes.

9 MS. MURPHY: That's right.

10 THE CHAIRMAN: But, again, if it poses a
11 particular hardship to a particular party, we might
12 even adjust the order further.

13 MR. CASSIDY: I agree with that solution
14 to Ms. Kleer's problem.

15 THE CHAIRMAN: Ms. Murphy?

16 MS. MURPHY: I was just going to say, at
17 the present time what we are hoping to do is bring
18 those witnesses for August the 8th, to commence those
19 witnesses. So that that would mean the
20 cross-examination of Panel 14 would be put over.

21 All I am saying is, I am not entirely
22 sure about Dr. Ritter's availability for a length of
23 time and I have asked him and I will advise.

24 THE CHAIRMAN: Okay. Well, ask him on
25 the basis that the Board feels it rather important that

1 his evidence be dealt with at the same time as Mr.
2 Kingsbury.

3 MS. MURPHY: Certainly.

4 MS. SEABORN: And, Ms. Murphy, perhaps --

5 THE CHAIRMAN: By the way, in the case --
6 sorry, Ms. Seaborn.

7 MS. SEABORN: That's all right.

8 THE CHAIRMAN: In the case of a witness
9 like Dr. Ritter, would it assist if the Board issued a
10 subpoena?

11 MS. MURPHY: I don't think it is
12 necessary.

13 THE CHAIRMAN: No. I am indicating that
14 because very often government agencies or government
15 employees sometimes need the assistance of a subpoena
16 in order to appear because they have some concerns
17 raised by their employers.

18 MS. MURPHY: That's right. It is an
19 entirely sensible question because it does happen and I
20 have canvassed it and it's not necessary in the
21 circumstances, but that's true.

22 THE CHAIRMAN: Anything further?

23 (no response)

24 Very well. We will adjourn until
25 tomorrow morning at 8:30.

1 MS. BLASTORAH: Thank you, Mr. Chairman.

2 THE CHAIRMAN: Thank you.

3 ---Whereupon the hearing adjourned at 6:10 p.m., to be
4 reconvened on Friday, June 16th, 1989, commencing at
5 8:30 a.m.

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